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Software Development Project Management

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Client: Southern Trust

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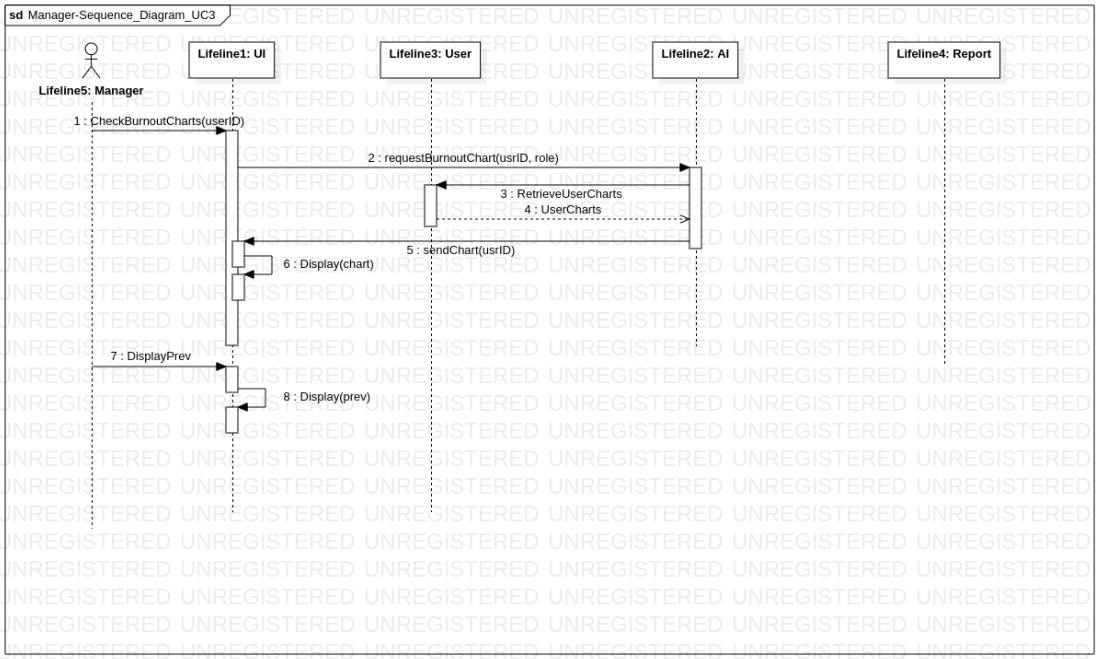

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Creative idea description

Context

Burnout in the workplace has become a huge problem in recent years. It is a universal problem in all areas of work. Nevertheless, despite it being so common, it's usually not addressed in the vast majority of companies. This is due to many causes. These range from economical and to personal emotional reasons. Therefore studies have found that burnout is extremely underreported. Especially in regular nine to five office jobs. The combination of long hours in an office and having a constant bombardment of deadlines and responsibilities make the perfect pot for burnout to happen.

A study from reimagine work conducted from December 2020 to january 2021 has shown that at least half of all employees report being at least somewhat burnout. Due to the nature of the study, it is very likely that most people had underreported. It is crucial that we found ways to prevent and stop burnout. Burnout causes plenty of health problems. Reducing and preventing the amount of burnout in an office is something that would benefit both the employee and the employer. From the point of view of the employee, reducing burnout will significantly increase it's quality of life. On the other hand, the employer will also benefit because the productivity of it's workers will increase significantly.

Project/solution description overview

Our solution is based on an evaluation system which provides two different methods to obtain information from workers to evaluate their mental health and find a solution if they are in danger of suffering a burnout. The complete coverage method doesn't need the support of humans or third parties to work, it encourages employees by displaying in different formats his contribution to the end product and with a meditation and mindfulness system. On the other hand, the partial-coverage method works by suggesting the user ways to prevent work monotony and stress, it sponsors him in various ways to keep him in a good mood and takes advantage of the help of employees superiors, the human resources team and other professionals if needed virtually and in-person.

Description of AI system

The system will have an Artificial intelligence implementation that will monitor employees' habits and trained to determine the probability of burnout and assign a level to an employee. When an employee surpases different level thresholds, a set of possible solutions (both for prevention of burnout and mitigation of burnout) will be created.

In order for the AI system to measure the probability of burnout of an employee, it will have two types of inputs:

- Short employee fulfilled surveys with questions about work satisfaction, emotional exhaustion, detachment, isolation and repetitiveness.
- Automated inputs that will measure different aspects of the employee's working habits. Some of these inputs can be:
    - The time that the employee stays continuously working without breaks. For example an employee working long continuous sessions multiple times can provoke burnout in the future.
    - The frequency of breaks on a working session. An employee that is doing more breaks than usual, or longer breaks can mean that the employee is in the process of burning out.
    - Work efficiency and tasks completed.

With these inputs, the trained model will determine a burnout score for each employee. When this score passes certain thresholds, a list of personalized solutions for the employee will be created by the system. These solutions can be directly served by the system automatically and others can require human intervention.

This artificial intelligence will use measured data to continually improve its ability to detect burnout.

System to manage proposed solutions

Solutions along with the detection of the symptoms of the employee is all this application is about. The aim of the proposed solutions will target burnout prevention over recovery (although some recovery solutions will be provided), as the system's primary goal is to prevent it from happening.

Many times workers could avoid getting into stress by a better insight on their breathing and relaxation capabilities on the human body, because of this reason one of the solutions is to provide the employer with meditation and mindfulness resources. We will get in contact with a third party company that works on this field for the implementation of it in our software. The employee will be able to personalize this mindfulness and relaxation remainders.

Not seeing how the contribution of your work affects the final product may lead to lack of meaningful tasks. Thats we our software application will show to every employe how important is their job, it will implement videos or messages showing: gratitude from final user, what would be the final result of a project if your contribution would have not been made, bosses feedback and acknowledgement of your work, how much your work have resulted in the reduction of time, effort, or money expense of other people on your project and a timeframe of the project once you have done your part of the job with a project.

Long periods of demanding work may lead to burnout syndrome, the reason why the software will suggest to the employee about having a break, walk, get hydrated and clear their mind.

There will also be a checking system divided in two parts: in person and virtual.

Virtual checking will be based on a pop up reminder to take a break and a journal about stressful situations in order to get your stressful feeling out. Whether in-person checking will be done by putting in contact with an individual monthly with a mental health professional or daily walking with someone regular in the office.

1. General data of the company offering the project

- **Name**: Balanced
- **Description**: Software consulting company focused on improving workspace efficiency and streamlining office operations
- **Mission**: Our mission is to promote a healthy workspace environment by providing software solutions and assistance.

2. Definitions and acronyms

AI: Artificial Intelligence
DNN: Deep Neural Network: An advanced form of self improving Artificial intelligence.

3. Initial offer and budget

3.1 Offer

Main objective:

Our system is designed to detect and prevent the onset of burnout syndrome in employees through a combination of healthy and unobstructive notifications on health and targeted, rigorous intervention methods proven to be effective. We believe that with reminders of healthy habits during work, as well as intervention both from our system and Southern Trust's own representatives, employees will always be at their best. There are many causes and factors that lead to burnout syndrome, and as such, we are deploying a Deep Neural Network (DNN) to ensure proper detection and prevention of burnout syndrome. Our DNN can adapt to any work environment and employee, making it effective across all fields.

Existing solutions:

Please refer to section 8.1.2

Action Plan:

The time estimated to complete the project is computed by assessing the complexity of the use cases. Although the initial use case draft has few use cases, these are very complex so the time it will take to complete all the use cases will be 12 months between the current number of people assigned.

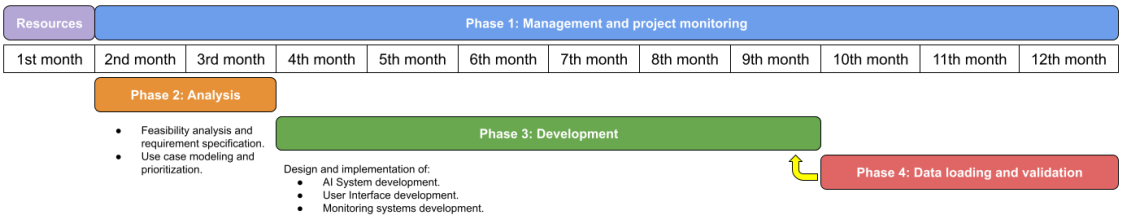


Figure 1 Project Timeline

Our proposed project has an estimated duration of 12 months. And it will be carried out in different phases.

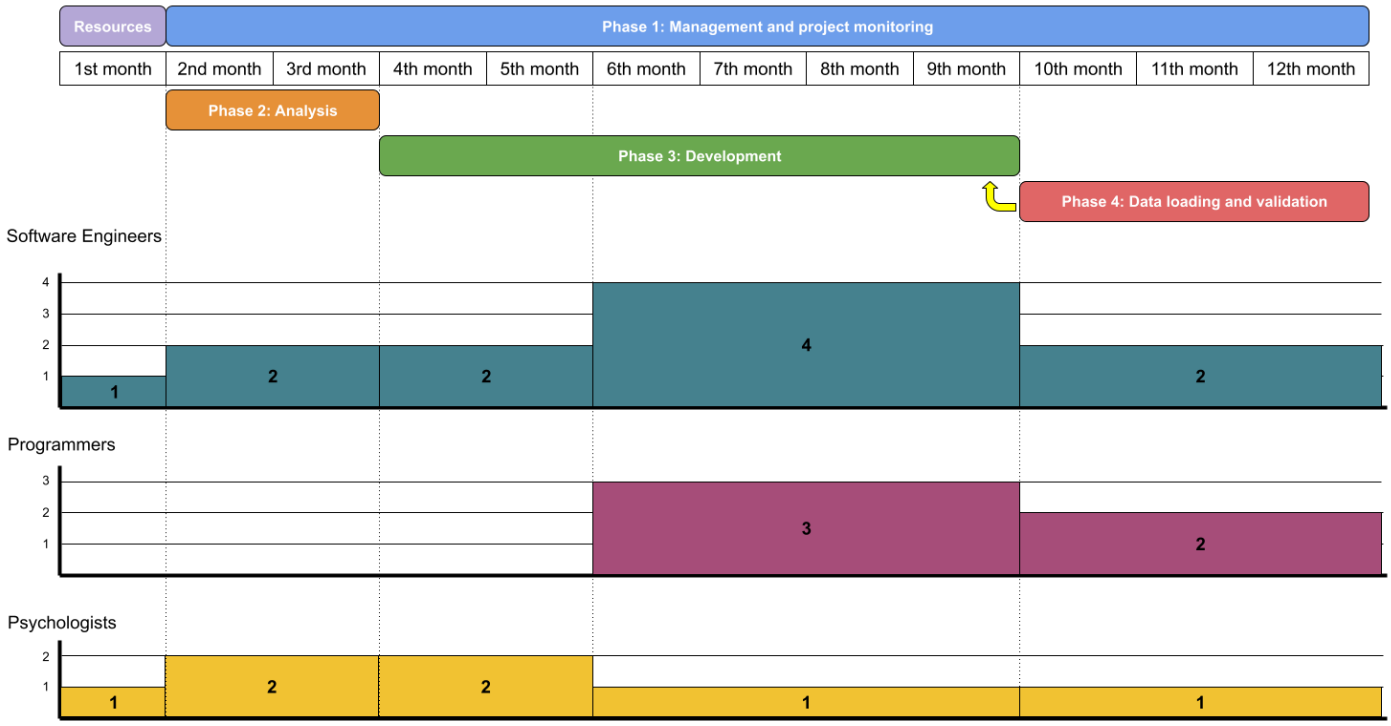


Figure 2 Project Timeline with Resources Histogram

We will require the help of 2 psychologists with knowledge about burnout processes during all the development. During the implementation stages of the development phase we will require up to 4 software engineers and 3 additional programmers implementing the AI system, the UI and the monitoring system.

Milestones:

- Start of development: Start of month 4.
- Finish development of AI system: During month 7.
- End of development: End of month 9.
- End of the project: On the 12th month.

3.2 Budget

Software Engineer:

Cost per person per month 1,200 € (gross).
Dedication 5 hours a day.

Programmer:

Cost per person per month 1,000 € (gross).
Dedication 5 hours a day.

Psychologist:

Cost per person per month 1,500 € (gross).
Dedication 4 hours a day.

Description	Total
Salary of the teamwork	79,200 €
Computer equipment	5,400€
Software	2,500€
Consumables	-
Travel & Expenses	-
Risk (% of your budget)	15%
Profit (Margin for the company) Indirect Costs (Profit margin, 10% is correct)	8,710€
VAT (21%)	20,120€
Total	115,930€

Table 1 Budget estimation

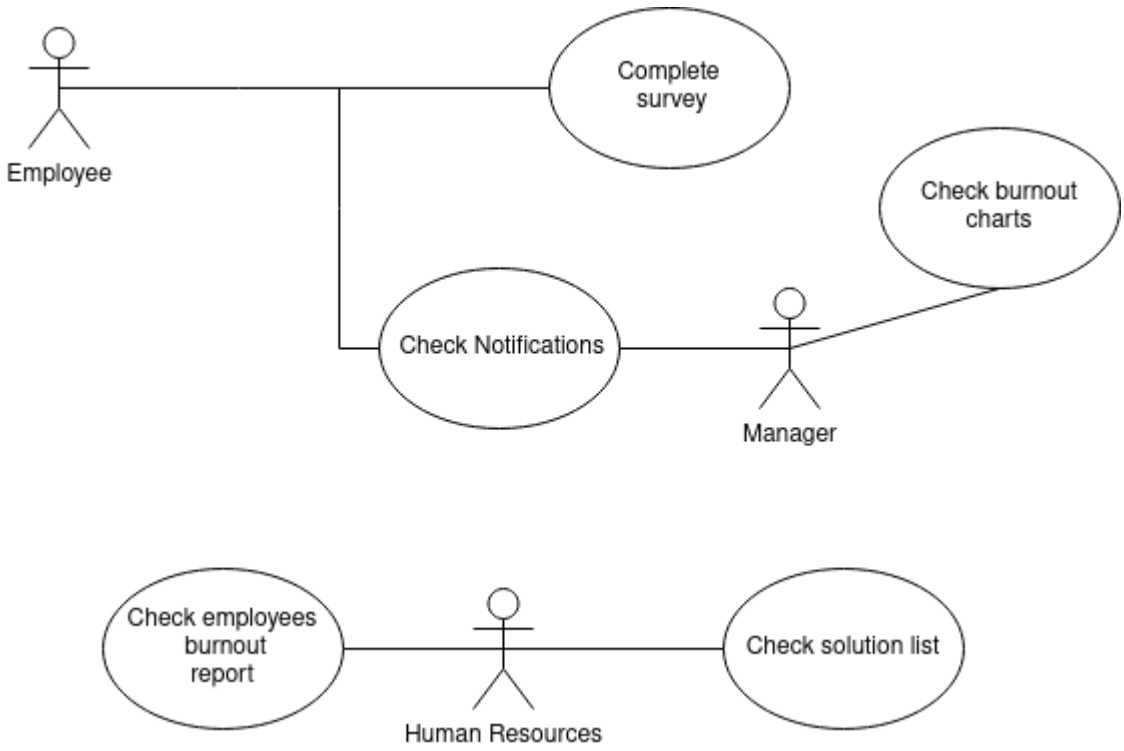


Figure 3 Draft of the use case model

4. Software Configuration Management Plan

INTRODUCTION

4.1 Purpose of the Plan

The Plan detailed below is aimed at both the development staff and the management team. The aim is to make the project sufficiently robust to collect information about the state of the product and to make a change. The changes are especially delicate in this one, since there are elements that require special attention and care when modifying them.

It is therefore intended to document each baseline and each change made as indicated below when detailing configuration management activities.

4.2 Scope

This SCM plan will apply to the project Balanced.

4.3 Definitions and Acronyms

The following are the acronyms used in this Configuration Management Plan.

4.4 References

IEEE828

MANAGEMENT SPECIFICATIONS

This section identifies the coordination and management tasks that will be necessary to carry out the SCM.

4.5 Organization

There must be permanent and direct contact between the development staff and the change control committee, so that delays in the processing of a change are as short as possible, so that both improvement and correction processes are not tedious work. Both the change control committee and the other development staff should pay special attention to the points where it has been stipulated that baselines will be established within the development. For more information see the section on Definition and Establishment of Baselines**.**

4.6 Responsibilities

Change control committee: Juan Carlos Cebrián Peñuela. Iván Dario Cersósimo. Greg Carter

Responsible for SCM: Alejandro González Núñez

Librarian: Alejandro Salazar Gómez

Rest of the development staff: Ricardo Diaz

4.7 Applicable policies, directives and procedures

The applicable procedures are described in the section: "Configuration Change Control".

CONFIGURATION MANAGEMENT ACTIVITIES

The following is a description of the SCM activities that will be carried out during the development of this project.

4.8 Configuration Identification

4.8.1 The preliminary product hierarchy is established

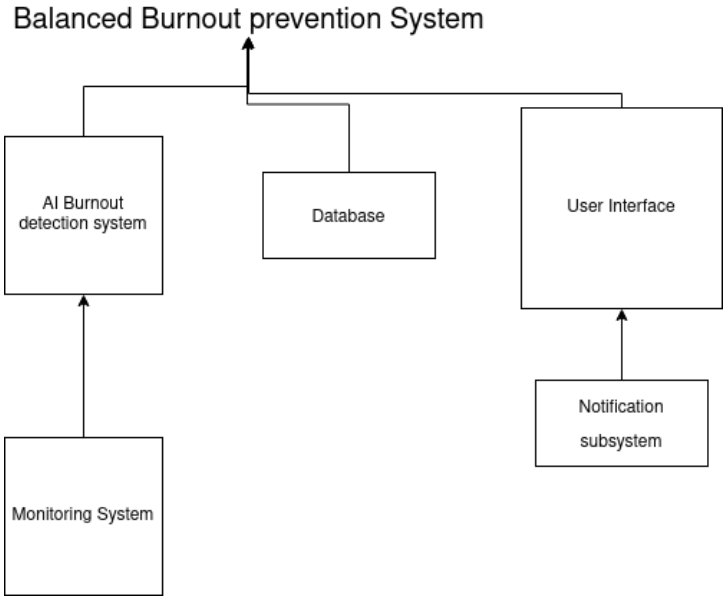


Figure 4 General system structure

4.8.2 Selection of the configuration elements

Planning and requirements specification phase (1 time)

- Feasibility analysis (including requirements specification)
- Feasibility review
- Use cases model
- Use cases model review
- Prioritization of use cases
- Prioritization of use cases review.
- Definition of high-level use cases.
- Definition of high-level use cases review

Construction Phase (n times)

- Iteration 1
  - ANALYSIS
    Use cases in extended format. Use cases in extended format review Conceptual model Conceptual model review Operation Contracts Operation Contracts review
  - DESIGN
    Class diagram Class diagram review Sequence diagrams Sequence diagrams review Transition states diagram Transition states diagrams review
  - CODING
  - TESTING
- Iteration 2 (Same)
- …
- Iteration N (Same)

Installation phase (1 time)

- Deployment

4.8.3 Selection of the identification scheme

Codes stored by order of importance, signified by lower number. (0 = integral)
Stored as:

- CE code: SC-XYY_W
  - (Identifier)-(Importance)_(Iteration)
  - Identifier is a shorthand for the name of the thing being changed/added
  - Importance: X = Type, Y = Priority Level, W = Iteration
    - X=0 proposal
    - X=1 design
    - X=2 Control
- Name of the CE
- CE Description
- Date of creation
- Project to which it belongs
- Baseline to which it belongs

- Type of CE

4.8.4 Definition of relationships

Dependence : The process model depends on the data model and this relationship is two-way
Derivation: They can usually be identified among elements that have a chronological order.
Succession: Describes the history of changes in a CE from one revision to another.
Variation: variations on the same element.
Composition: A CE is made of various “smaller” CEs.

4.8.5 Definition and establishment of baselines

Milestone	CEs included	Expectations
MILESTONE_0	BASELINEDESC-100_0 USECASE(1-4)-10_0	Start of development: Start of month 4.
MILESTONE_1	BASELINEDESC-100_0 USECASE(1-4)-10_0	Finish development of AI system: During month 7.
MILESTONE_2	BASELINEDESC-100_0 USECASE(1-4)-10_0	End of development: End of month 9.
MILESTONE_3	BASELINEDESC-100_0 USECASE(1-4)-10_0	End of the project: On the 12th month.

Table 2 Milestones baselines

4.8.6 Definition and establishment of software libraries

ofWork Libraries:

Name	Location
Programmer 1	/server/projects/balanced-burnout/ofWork/programmer1
Programmer 2	/server/projects/balanced-burnout/ofWork/programmer2

Programmer 3	/server/projects/balanced-burnout/ofWork/programmer3

Table 3 Of work Libraries

Support Libraries :

Root path for support libraries: /server/projects/balanced-burnout/support/ each finished CE will be inside its directory

CE	Location
OFFER-00_0	/server/projects/balanced-burnout/support/offer
BUDGET-01_0	/server/projects/balanced-burnout/support/budget

Table 4 Support Libraries

Production Libraries :

Name	Location
Production1_0	/server/projects/balanced-burnout/Production/1_0

Table 5 Production Library

Master Libraries:

Name	Location
Master1_0	/server/projects/balanced-burnout/Master/1_0

Table 6 Master Library

4.9 Changes control

- Applicable change control procedure

We will define our Change Control procedure according to the IEEE 1042-87 standard.

  - Change request

- The application is classified and registered
- Evaluation of the application
- Approval or rejection
- The change order is given, if deemed appropriate, and the developers
- of the CEs affected by the change are notified
- The change is made
- Change is assessed
- The originator of the change is notified of the result

- Change Request Report Format:

1. Why is it requested?
2. Who is requesting it?
3. What needs to be changed.
4. Damage estimate (expected time and cost).
5. Affected areas.
6. Change approval.

- Change Certification Report Format:

1. Value of change to the organization.
2. Return of investment.
3. Size of change.
4. Complexity.
5. Resources available for change.

4.10 Status account.

Include here the record of configuration elements, baselines and relationships that occur in this project. (this information can be here or in section 11 of the dossier)

Present in section 11 of this document.

4.11 Configuration auditing.

Include here the record of revisions made to configuration items throughout the project, or the management of changes that have occurred throughout the project. (this information can be here or in section 10 of the dossier)

Present in section 10 of this document.

5. Quality Plan

CONTENT OF THE QUALITY ASSURANCE PLAN FOR THE INFORMATION SYSTEM

In the successive points of the document, the detailed tasks that are going to be carried out in the fulfillment of the Quality Assurance Plan will be exposed to check that the whole project fulfills the necessary quality criteria and that they have been considered as indispensable for the correct accomplishment of the project.

The revisions will be made as the project phases are completed until the final and complete design of the product is reached.

Those responsible for carrying out the revisions and accepting the validity of the products will be Alejandro Gonzalez Nunez as Quality Manager and Ricardo Diaz as Project Manager. In addition, all the members of the work team must carry out the revisions assigned by the Project Manager and communicate to the two people in charge of the Quality Assurance Plan in the event that any fault is found.

The following points of the document detail the specific reviews that will have to be carried out in compliance with the Quality Assurance Plan. The establishment of this quality assurance plan will begin in the System Feasibility Study and will be applied throughout the development of the software project (analysis, design, implementation...).

For each of the revisions, an Audit Report must be added that includes the approval or rejection of the revised product, indicating, if necessary, the causes for rejection of said product.

REVIEW OF THE SYSTEM'S FEASIBILITY STUDY

DOCUMENT REVIEW

Alejandro Gonzalez Nunez, as Quality Manager, will confirm that the requirements have been specified in a structured way, with a precise and complete content, as established in the Quality Assurance Plan. Our Quality Manager will ensure that the requirements specification document offers the following features:

- Identification of absolutely all user requirements.
- Consistency between the content of the document and its objective.
- Each requirement describes the functionality that corresponds to it.
- Correspondence between the requirements of the document and the requirements obtained from the user, so the requirements specification is complete.
- Description of the requirements in clear, unambiguous language and therefore precise
- The feasibility study is self-descriptive, as its structure and content are described.
- A requirements traceability matrix shall be carried out to check that all user requirements have at least one software requirement associated with them and are thus present in the system design.

REVIEW OF USE CASES

REVISION OF THE USE CASE DIAGRAM

Use cases are a very important tool in the software development process and we use them to estimate activities before modeling or building a software development process.

With the use cases we have the functionalities and characteristics or basic requirements of the system. They are not based on any language so they are independent of them.

From the use cases, using the use case method, the size of the software will be estimated. The requirement to be able to use this tool is to define a use case model that represents well the domain of the problem to be addressed.

Alejandro Gonzalez Nunez, as Quality Responsible, must carry out the revision of the Use Case Diagram, for this she must verify that the use case diagram complies with the following:

- The use case diagram describes the behavior of the system, i.e. the complete functionality of the software project to be developed.
- The use case diagram includes all identified use cases representing all system functionalities.
- The use case diagram includes all the actors identified and involved in the system.
- The use case diagram includes all the dependencies and relationships between actors and use cases.
- The use case diagram complies with the graphic notation defined in UML modeling language.
- The use case model includes a glossary of terms that describes the terminology used.

REVIEW OF HIGH-LEVEL USE CASES

Alejandro Gonzalez Nunez, as Quality Manager, must carry out the revision of the high level Use Cases, to do so, she must verify that they comply with the following

- The high-level use cases contain the name, actors, description and type of use case.

- Each use case describes how to achieve a single goal, that is, it describes a feature of the system.

- Each use case contains a textual description of the functionality associated with the appropriate level of detail, including ways in which the intended actors could work with the system. The description will use the language of the end user.

- The use cases do not describe internal system functionality, nor do they explain how it will be implemented. They do not include technical jargon.

- Each use case shows the steps that the actor follows to perform an operation.

- The use cases comply with the graphic notation defined in UML modeling language.

CONFIGURATION MANAGEMENT PLAN REVIEW

CONFIGURATION MANAGEMENT PLAN REVIEW

Alejandro Gonzalez Nunez, as Quality Manager, must carry out the revision of the Configuration Management Plan, to do so she must verify that it complies with the following:

- The project includes a Configuration Management Plan for the control and management of changes in which the activities to be carried out are established that allow the control and management of changes in the project.

- The Configuration Management Plan complies with IEEE Std. 828 - 2005: "IEEE *Standard for Software Configuration Management Plans*" and ANSI/IEEE Std. 1042 - 1987: "*IEEE Guide to Software Configuration Management*".

- The management of the configuration defined in the SCM is carried out during all phases of the software project development, including maintenance and change control.

- The SCM describes a change and version control mechanism that ensures the production of quality software.

- The MTS includes the procedure for generating the necessary documentation for recording and monitoring the changes that occur during the development of the project.

REVIEW OF PROJECT ESTIMATION AND PLANNING

REVISION OF ESTIMATE

When planning a project, an estimate of the cost and human effort required must be obtained. Estimation is one of the crucial activities in the software project management process, necessary for project planning.

Alejandro Gonzalez Nunez, as Quality Responsible, must make the revision of the estimate made for the software development project, for this she must review the following:

- The method used to estimate the effort for the development of the software project uses size-oriented metrics based on points of use cases.

- Before each iteration, verify that the estimate has been made taking into account the use cases included in the estimate.

- The use case points for each of the iterations have been calculated following the procedure established for this estimation method which includes the following steps:

    - Classify each iteration between actor and chaos of use according to its complexity and assign a weight according to it.

    - Calculate the complexity of each use case according to the number of transactions or steps in the case.

    - Calculate the Unadjusted Use Case Points of the iteration.

    - Calculate technical and environmental complexity factors.

    - Calculate Adjusted Use Case Points.

- Once the use case points have been obtained for an iteration, verify that the corresponding effort required to carry them out in that iteration has been calculated from them.

PLANNING REVIEW

Planning is the process of establishing objectives and choosing the means to achieve them. It is essential to carry out an analysis of the project in order to foresee from the beginning and during the development of the project the situations that may arise and to create the necessary conditions to be able to solve them or minimize the consequences that they may have on the development of the project and the achievement of the objectives.
Alejandro Gonzalez Nunez, as Quality Manager, must carry out the revision of the planning made for the software development project, for this she must verify the following:

- A prioritisation of use cases to be developed has been carried out and the iterations that will make up the complete development of the software and the use cases included in each of them have been defined.

- An estimation of each iteration has been made based on Use Cases. Based on this estimate, planning will be carried out.

- Before starting an iteration, a planning of the iteration will be done based on the estimation of the effort needed according to the points of use cases.

- The planned planning for the development of the software project will be adapted and updated as the project progresses.

- Planning includes how many people should participate in the project team, what technical skills are needed, when to increase the number of people and who will participate.

- The planning done defines how the team that will work on the software development project will be organized.

- The planning follows the methodology applied to the software development project which is, in this case, incremental iterative based on use cases.

- A Gantt chart is included, representing all the activities to be carried out throughout the project development period. The diagram connects the different activities based on their relationships of precedence and defines the estimated resources and times for each activity.

- The Gantt chart reflects the tasks and key dates, the milestones and the dependency between tasks.

- The quality metrics to be applied to the planning carried out will be

- Speed at which objectives or requirements are completed in each iteration

- Urgency and priority of the completed requirements, to check if there is any misalignment with the project objectives and the organization's strategy.

- Requirements completed in iteration.

- Built-in changes and added requirements on the initial scope of iteration

- Number of requirements completed out of total requirements.

- Deviation of project results from initial planning

- Budget available, budget spent and financial deviation from initial planning.

- Customer satisfaction with regard to the results obtained.

TEST PLAN REVIEW

TEST PLAN REVIEW

Alejandro Gonzalez Nunez, as Quality Manager, must carry out the revision of the Test Plan, for this she must do the following:

- It should be checked that there are rules for carrying out the tests so that it is possible to verify that these tests have been carried out, as well as indicating how to act in the event of differences between the expected result and the result obtained.

- A traceability matrix must be carried out to ensure that there is evidence to verify all software requirements.

REVIEW OF THE PRODUCTS OF THE ANALYSIS PROCESS

REVIEW OF USE CASES IN EXPANDED FORMAT

Alejandro Gonzalez Nunez, as Quality Responsible, must carry out the revision of the Use Cases in expanded format, for this she must do the following:

- From each high-level use case, an expanded use case has been built, in each iteration.

- Each expanded use case is composed of two sections, the header that includes the name, actors, description and type of use case, and the body that describes typical events and alternatives to typical events.

- Expanded use cases define the initiator of the use case.

- The body of the use case consists of two columns describing the actions of the actor and the system responses to them.

REVIEW OF THE CONCEPTUAL MODEL OF THE ANALYSIS

Alejandro Gonzalez Nunez, as Quality Manager, must carry out the revision of the Conceptual Model, for this purpose the following must be verified:

- The analysis model represents the aspects of the problem in a way that is close to the concepts of the problem domain and describes the main characteristics of the system. The analysis model carried out in each of the iterations that make up the project will be validated.

- The conceptual model does not include implementation decisions. It will also be verified that it is independent of the implementation.

- The conceptual model complies with the graphic notation of the UML modeling language. You should also check that the notation has the necessary level of detail to represent the problem, without being overloaded.

- The conceptual model has been made through an object model or class diagram (without methods) that defines the system properties. The entities and the relationships between them have been identified for each iteration.

- The quality metrics to be applied to the conceptual model resulting from the analysis in each iteration are the following:

- Semantic quality: correspondence between the model and the domain, i.e. the model reflects the domain. The validity of the model will be verified, i.e. that all the facts included in the model are correct and relevant to the domain.

- Completeness: the model will be checked to ensure that all facts are correct and relevant to the domain.

- Language quality: the modeling language used to capture the domain is a language that is easy to understand by all participants. The formalization of the language allows the execution of the system.

- Syntactic quality: there is a correspondence between the externalization of the model and the extension of the language in which the model is written.

REVIEW OF OPERATING CONTRACTS

Alejandro Gonzalez Nunez, as Quality Manager, must carry out the revision of the operation contracts that are generated, for this purpose the following must be verified:

- For each case of use, there must be a contract of operation for each action of the actor.

- Each operating contract will consist of the following fields: contract name, operation, cross references, preconditions and postconditions.

- Cross-references in the contract shall correspond to references to the requirements defined in the project that are resolved with the use case to which the operation contract belongs.

REVIEW OF THE DESIGN PROCESS PRODUCTS

CLASS DIAGRAM REVIEW

Assessing whether the design obtained meets the required quality level is important in order to know the effectiveness of the processes that have been modeled and whether or not they require great effort for their implementation.

Evaluating design class models by applying metrics allows for the detection of shortcomings and potential improvements from early stages of product development, preventing them from spreading to subsequent phases and enabling the creation of a robust system from its conception.

Alejandro Gonzalez Nunez, as Quality Responsible, will have to carry out the revision of the Class Diagrams, for this she will have to check the following:

- Class diagrams will be made for each iteration with UML and the design will be totally independent of the implementation.

- The comprehensibility of the model or facility with which the class diagram can be understood, the analyzability of the model or facility offered by the class diagram to discover its deficiencies or errors, and the modifiability of the diagram or facility offered by the diagram to make a specified modification, either by error, by a concept not taken into account or by a change in requirements, shall be measured.

- The following metrics will be used to measure the structural complexity of the class diagrams:

    - Number of classes: total number of classes.

    - Number of attributes: total number of attributes.

    - Number of methods: total number of methods.

    - Number of partnerships: total number of partnerships.

    - Number of aggregations: total number of aggregation ratios.

    - Number of dependencies: total number of dependency relationships.

    - Number of generalizations: total number of generalization ratios.

    - Number of generalization hierarchies: total number of generalization hierarchies

- Number of aggregations: total number of aggregation ratios.

- WMC: class weighted methods, according to their complexity.

- Maximum ITL: is the maximum ITL value obtained for each class in a class diagram. For a class within a generalization hierarchy, it is the length of the longest path from the class to the root of the hierarchy.

- Maximum HAgg: is the maximum HAgg value obtained for each class in the class diagram. For a class within an aggregation hierarchy it is the length of the longest path from the class to the leaves.

- The proposed metrics are highly related both to maintenance time and to the comprehensibility, analyzability and modifiability of the designed class diagram.

REVIEW OF SEQUENCE DIAGRAMS

Alejandro Gonzalez Nunez, as Quality Manager, must carry out the revision of the sequence diagrams generated in the project during the design phase of each iteration, for this purpose the following must be verified:

- For each use case, sequence diagrams have been designed that define both the typical course and the atypical courses of the events defined in them.

- The sequence diagrams show the interaction represented by the sequence of messages between the class instances and actors. The diagrams show instances and events that describe the interaction between the classes.

- Time flows down the diagrams and shows the control flow from one participant to another.

- The UML notation is followed in the definition of the diagrams. The elements included in the sequence diagram are:

    - Name of the sequence diagram.

    - Lifelines for actors and class instances.

    - Messages between instances that define the method that the message calls on the receiving lifeline. In addition, the receiving line is linked to an interface or class.

    - Loops indicate the number of times the loop is executed if known.

REVIEW OF STATE DIAGRAMS

Alejandro Gonzalez Nunez, as Quality Manager, must carry out the revision of the state diagrams generated in the project during the design phase of each iteration, for this purpose the following must be verified:

- The defined state diagrams describe the behavior of the system, with each diagram showing the behavior of a single object during its entire life cycle.
- State diagrams contain states and transitions, and the transitions between them include the corresponding events or actions.
- The state diagram shows all possible states that the object goes through during its life in the application as a result of the events that reach it.
- There is an initial state and a final state and all states represented in the diagram are accessible.

6. Estimation

Adjusted Use Case Points (UCP) = UUCP * TCF * EF		60,9246	
Person Hours Mulitiplier (PHM) (Per use case)	* A value of 0 means too risky to proceed	20	hours.use-case
Effort in Person Hours = UCP * PHM (just coding)		1218,492	hours.man
Effort in Person Hours whole project		3046,23	hours.man
Esfuerzo Meses Persona Estimados en el Proyecto		26,26060345	MM
Time estimated using COCOMO II Organic Mode	Tdev=2.5(MM)0.38	8,655173843	Months
Average Team Size (Full Time)	Team Size =MM/Tdev	3,034093125	People
Cost		27074,68216	Euros
Hours worked per month	116		
Average Monthly Salary (euros)	1031		

Table 7 Project estimation

Unadjusted Actor Weight Total (UAW)	**13**
Unadjusted Use Case Weight Total (UUCW)	**55**
Unadjusted Use Case Points (UUCP) = UAW + UUCW	**68**
Technical Factor Value (TFactor)	**39**
Technical Complexity Factor (TCF) = 0.6 + (0.01 * TFactor)	**0,99**
Environmental Factor Value (EFactor)	**16,5**

Environmental Factor (EF) = 1.4 + (-0.03 * EFactor)	**0,905**

Table 8 Use Case Point Estimation

7. Planning

The project will have a length of 225 days. And is divided in the following parts:

- Project
  - Phase 0: 68 days
  - Phase 1: Planning & Requirements - 17 days
  - Phase 2: Construction - 137 days
    - Iteration 1 - 61 days
    - Iteration 2 - 30 days
    - Iteration 3 - 46 days

8. Planning and requirements specification

8.1 Feasibility study

IDENTIFYING THE SCOPE OF THE SYSTEM

An AI powered system that will detect and reduce the effects of burnout on employees by measuring work habits. When detected the AI system will propose a set of solutions to reduce burnout and send a report to the HR staff and Manager.

IDENTIFICATION OF STAKEHOLDERS IN THE SYSTEM

Project Manager: Gregory Carter

Analyst: Ivan Dario Cerosimo

Designer: Juan Carlos Cebrián Peñuela

Programmer: 3 programmers yet to be hired.

Tester: Ricardo Diaz Acosta

Configuration Management: Alejandro Salazar Gómez

Quality Management: Alejandro González Núñez

8.1.2 Requirements definition

The requirements are going to be described as follow:

Identifier:	
Name:	
Priority:	**Source:**
Necessity:	
Clarity:	**Verifiability:**
Description:	

- The identification of the requirements will be done in the following way:
  - Identifier: Y-Sys-nnn
  - Sys: System Code
    - AI = Artificial Intelligence
    - UI = User Interface
    - MON = Monitoring System
    - ALL = general for all systems
  - Y:Indicates the type of requirement:
    - FR - Functional requirements
    - NF - Non Functional Requirements
  - nn: Consecutive numbers to identify a requirement
- The name field summarizes the requirement
- The priority will have one of the following values:
  - High
  - Medium
  - Low
- The source field can have one of the following values:
  - Customer
  - Analysts
- The necessity field will have one of the following values:
  - High
  - Medium
  - Low
- The clarity field will be assigned one of the following values:
  - High
  - Medium
  - Low
- The verifiability field can have one of the following values:
  - High
  - Medium
  - Low
- The description field serves to explain the requirement.

8.1.1.1 Functional Requirements

Monitoring System FR

Identifier:FR-MON-0001	
Name:	Keyboard and mouse Monitoring
Priority: High	**Source:** Analysts
Necessity: High	
Clarity: High	**Verifiability:** High
Description:	The system shall allow measuring keyboard and mouse use frequency, and total time of use.

Identifier:FR-MON-0002	
Name:	Used programs monitoring
Priority: High	**Source:** Analysts
Necessity: High	
Clarity: High	**Verifiability:** High
Description:	The system shall measure the average use time of each program by the employee.

Identifier:FR-MON-0003	
Name:	Format and send monitoring data
Priority: High	**Source:** Analyst
Necessity: High	
Clarity: High	**Verifiability:** High
Description:	The system shall format the data and send it to the artificial intelligence system

AI SYSTEM FR

Identifier: FR-AI-0001	
Name:	Obtain format data from monitoring system
Priority: High	**Source:** Analyst
Necessity: High	
Clarity:	**Verifiability:**
Description:	The system shall be able to obtain the format data from the monitoring system in order to manipulate the data

Identifier: FR-AI-0002	
Name:	AI Calculus
Priority: High	**Source:** Analyst

Necessity: High	
Clarity: High	**Verifiability:** High
Description:	With the data that the AI stores from a user , the AI should be able to apply the necessary methods and techniques . Getting deeper insight on the data we are dealing with and storing these results.

Identifier: FR-AI-0003	
Name:	Assigning a set of solutions
Priority: High	**Source:** Analyst
Necessity:	
Clarity: High	**Verifiability:**
Description:	Using the result obtained from the calculus the AI will assign to the user the set of solution that better fix its burnout problem

Identifier: FR-AI-0004	
Name:	Send solutions to UI system
Priority: High	**Source:** Analyst
Necessity: High	
Clarity: High	**Verifiability:**
Description:	The IA system should send the solutions to the UI system so it can show the solutions to the person using the burnout system

Identifier: FR-AI-0005	
Name:	probability of burnout
Priority: High	**Source:** Analyst
Necessity: High	
Clarity: High	**Verifiability:** High
Description:	Using the result obtained from the calculus the AI will assign to the user its probability of getting burnout

User Interface FR

Identifier: FR-UI-0001	
Name:	Display Chart
Priority: High	**Source:** Analyst

Necessity: High	
Clarity: High	**Verifiability:** High
Description:	The interface for HR should display the probable burnout chance of a given employee in a department.

Identifier: FR-UI-0002	
Name:	Display Notifications
Priority: High	**Source:** Customer
Necessity: High	
Clarity: High	**Verifiability:** High
Description:	All interfaces need to be able to properly display notifications for all users.

Identifier: FR-UI-0003	
Name:	Manage surveys
Priority: Medium	**Source:** Analyst
Necessity: High	
Clarity: High	**Verifiability:** High
Description:	The system shall be able to create, modify, send, receive surveys and format the data for processing.

Identifier: FR-UI-0004	
Name:	Display Proper Interface
Priority: High	**Source:** Analyst or Customer
Necessity: High	
Clarity: High	**Verifiability:** High
Description:	The UI should display the proper interface for each type of user.

Identifier: FR-UI-0005	
Name:	Login/out
Priority: High	**Source:** Analyst
Necessity: High	
Clarity: High	**Verifiability:** High
Description:	User should be able to log in, and be directed to the correct home page. User should be able to log out, and be sent to the login page.

8.1.1.2 Non-Functional Requirements

Identifier: NF-UI-001	
Name:	System compatibility
Priority: Medium	**Source:** Customer
Necessity: Medium	

Clarity: High	**Verifiability:** High
Description:	The application should be compatible with Windows, MacOS and Linux

Identifier: NF-UI-002	
Name:	Intuitive Interface
Priority: Medium	**Source:** Customer
Necessity: Medium	
Clarity: Medium	**Verifiability:** Medium
Description:	The application should have an interface easy to understand and use by both employees, HR, and Manager.

Identifier: NF-UI-003	
Name:	Accessibility (WCAG 2.1)
Priority: Medium	**Source:** Customer
Necessity: Medium	
Clarity: High	**Verifiability:** High
Description:	The system shall be accessible by users that suffer disabilities by following the WCAG 2.1 accessibility guidelines.

Identifier: NF-ALL-001	
Name:	The system shall have an EULA
Priority: Medium	**Source:** Analysts
Necessity: Medium	
Clarity: High	**Verifiability:** High
Description:	The system shall provide an adequate Legal EULA that the end users must agree with before being able to use it.

8.1.2 Study of alternative solutions

There are several alternative approaches to solve bornout using AI to accomplish the goal, take for example Erudit AI Inc with their SaaS AI tool analyzes that works on platforms such as Microsoft Teams, Slack and Zoom. Detecting any risk of burnout analyzing words in meetings, in a nutshell their AI analizes video conferences as well as voice meetings such that they can process the words that employees use, their tone of voice, as well as part of their physical appearance.

Another example is Rad AI, which helps employees to save time, reduce burnout, and improve patient care. This tool allows mental health experts to detect burnout by providing data of a patient. This fascinating technology makes it very easy to generate accurate information to reduce burnout based on the information that is provided.

Cerner's AI-enabled solutions goes further on traditional processing and focuses on user efficiency to identify problems and inconsistencies within the employee's record. These advancements help to reduce the physician workload, while supporting the financial strength of the health system.

8.1.3 Valuation of alternatives

Erudit AI Inc, as mentioned before this tool only works with video conferences which makes it a great idea and proposition, but it lacks an accurate description of an employee since it's not monitoring all of the required data to prevent and solve bournout.

There a lot to value from Rad AI as it's computing algorithms provide a good scope of what triggers burnout on a patient, but, taking into account that it's used in a health environment and mainly by mental health professional, it doesn't have a way to monitor real information from each work session of an employee.

Finally Cerne's AI-enabled solution is worthy of evaluation since it works as a prevention system, generating a good work environment for employees managing their schedules and leisure. The data they have gathered is very relevant since it can help as a tool to prevent burnout

8.1.4 Solution selection

We have decided to opt for a solution that combines, improves and goes beyond the ones provided by the companys before. Basically the Idea is to monitor each employee using a monitoring system that can gather real and accurate information of each session of an employee. We use this information to provide: fast, real and personalized solutions for each employee that shows possible burnout so that we can prevent this from happening. Finally in case an employee has bournout send a report with all the details to HR department so that they can seek professional care if needed

8.2 Use case model and traceability matrix

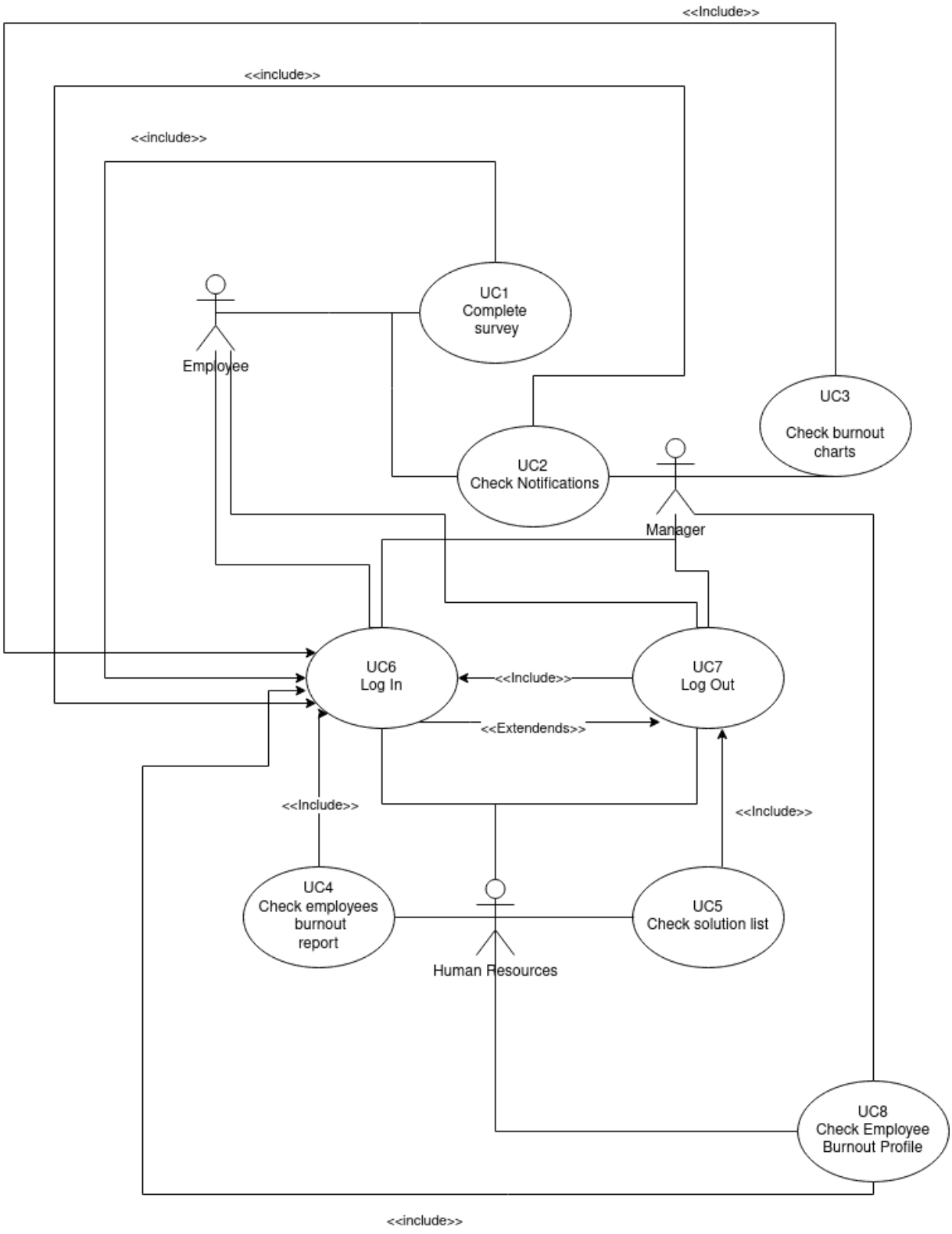


Figure 5 Use case model

	UC 1	UC 2	UC 3	UC 4	UC 5	UC 6	UC 7	UC 8
FR-MON-0001	X							X
FR-MON-0002	X							
FR-MON-0003	X							
FR-AI-0001	X							
FR-AI-0002		X		X				X
FR-AI-0003		X			X			X
FR-AI-0004		X			X			
FR-AI-0005		X	X	X	X			X
FR-UI-0001			X	X				X
FR-UI-0002		X			X			
FR-UI-0003	X							
FR-UI-0004	X	X	X	X	X			X
FR-UI-0005						X	X	
NF-UI-001	X	X	X	X	X	X	X	X
NF-UI-002	X	X	X	X	X	X	X	X
NF-UI-003	X	X	X	X	X	X	X	X
NF-ALL-001	X	X	X	X	X	X	X	X

Table 9 Traceability matrix

8.3 Use cases high level description

Name	Type	Actor(s)	Description
UC1 - Complete Survey	Primary	Employee	When an employee arrives at work and logins into the system, occasionally short questionnaires about satisfaction and the worker's mental health shall be filled up.
UC2 - Check Notifications	Primary	Employee & Manager	After the login of an employee, personalized notifications to help overcome any possible burnout shall arrive, as well as to managers so that they can check the employees state.
UC3 - Check burnout charts	Primary	Manager	After authenticating the manager can see the data output by the system for a given employee in a department.

UC4 - Check Burnout Report	Primary	Human Resources	When an HR employee logs in into the system, it will be able to check the burnout reports of different employees that have been automatically flagged as burned out.
UC5 - Check solution list	Primary	Human Resources	When an HR employee logs into the system , it will be able to check the list of fitting possible solutions created for an individual that has show burn out syndrome
UC6 - Login	Primary	Employee, Manager, HR	When an actor wishes to complete an action that requires credentials, they should be prompted to log into the system with their credentials.
UC7 - Logout	Primary	Employee, Manager, HR	When an actor wishes to end their session, they should be able to log out of their account.
UC8 - Check Employee burnout profile	Primary	Manager, HR	When an HR employee or manager logs in into the system, they will be able to check the burnout profile of different employees that they might want to check.

Table 10 Use cases high level description

8.4 Use cases prioritization

Assign a score/weight for each category for every use case.

a. Significant impact on architectural design. For example, if you bring many classes to the domain model or require persistence in the data.
b. A better understanding of the design is obtained with a relatively low level of effort.
c. Includes complex, time-critical or high-risk functions.
d. It involves either significant research work, or the use of a new or risky technology.
e. It represents a process of great importance in the line of business.
f. It directly means an increase in profits or a decrease in costs

Weight	.25	0	.25	.20	.10	.10	
Use Case	**a**	**b**	**c**	**d**	**e**	**f**	**Sum**
UC1 - Complete Survey	7	-	4	2	7	0	3.85
UC2 - Check Notifications	6	-	3	1	5	0	2.95
UC3 - Check	5	-	2	2	4	0	4.3

burnout charts							
UC4 - Check Burnout Report	7	-	5	2	4	2	4
UC5-Check solution list	7	-	4	2	5	2	3.85
UC6 - Login	10	-	0	0	5	0	3.00
UC7 - Logout	10	-	0	0	1	0	2.60
UC8 - Check Employee burnout profile	7	-	5	3	6	4	4.6

Table 11 Use cases prioritization

Iteration order will be given from the prioritization planned above .The criteria for the iteration will be the following :

Iteration 1: prioritization values between 5 and 4

- UC3 Check burnout charts
- UC4 Check Burnout Report
- UC8 Check Employee burnout profile

Iteration 2: prioritization values between 4 and 3

- UC1 Complete Survey
- UC5 Check solution list

Iteration 3: prioritization values between 3 and 2

- UC2 Check Notifications
- UC6 Login
- UC7 Logout

9. Construction

9.1 First Iteration

9.1.1 First iteration analysis

9.1.1.1 Expanded format use cases description

Use Case	Check Burnout Charts

Actors	Manager
Purpose	View the burnout probabilities for a group of employees
Overview	After authenticating the manager can see the data output by the system for a given employee in a department.
Type	Primary
References	UC6, UC7, UC8

Typical Course:

Actor	System
1. This begins when a manager logs into the system.	2. Displays the home screen
3. Selects 'View Report Chart'	4. Displays the current probabilities
5. Closes Chart (Close Page)	6. Displays the home screen
7. Logs out of system	8. Displays Login Screen

Alternative Courses:	7. Clicks alternate button. Then another use case is started.

Use Case	Check Burnout Report
Actors	HR
Purpose	To notify HR about employees likely to be burned out as well as possible solutions.
Overview	When an HR employee logs in into the system, it will be able to check the burnout reports of different employees that have been
Type	Primary
References	UC6, UC7

Typical Course:

Actor	System
1. This begins when HR interacts with a notification.	2. Displays the Login screen
3. Enters Credentials	4. Displays report and suggested actions
5. Closes the report (Close Page)	6. Displays home screen
7. Logout	8. Displays Login Screen

Alternative Courses:	2. User is already logged in. Skip to 4. 3. Incorrect Credentials. Employee prompted to re-enter credentials. 5. Clicks on employee. Employee Burnout profile displayed. 7. Clicks other button. Another use case is started.

Use Case	Check Employee Burnout Profile
Actors	Manager, HR
Purpose	To display the history and past actions taken of an employee's burnout
Overview	When an HR employee or manager logs in into the system, they will be able to check the burnout profile of different employees that they might want to check.
Type	Primary
References	UC3, UC4, UC6, UC7, UC8

Typical Course:

Actor	System
1. This use case begins when either HR clicks on the employee in a notification, or HR or the manager clicks on an employee in the chart.	2. The login screen is displayed
3. Enters credentials	4. Profile is displayed
5. Closes profile (Close Page)	6. Displays Home screen
7. Logout	8. Displays Login Screen

Alternative Courses:	2. User is already logged in. Skip to 4. 7. User clicks somewhere else. Then another use case begins.

9.1.1.2 Operation contracts

UC3 Check burnout charts

Contract: Check Burnout Charts	
Operation	retrieveBurnoutCharts(userID)
Cross References	UC3 Check Burnout charts
Preconditions	• The user is logged in and has the correct permissions. • The user is in charge of other employees.
Postconditions	• photo, ID number, and probability of burnout for each employee is displayed

Contract: Close Page	
Operation	displayPrev()
Cross References	
Preconditions	● A page that can be closed is open.
Postconditions	● The current page is closed and the previous opened page is open.

UC4 Check Burnout Report

Contract: Receive Notification	
Operation	listenNotifications
Cross References	UC4 UC2
Preconditions	● The user is logged in.
Postconditions	● A notification is sent to the user.

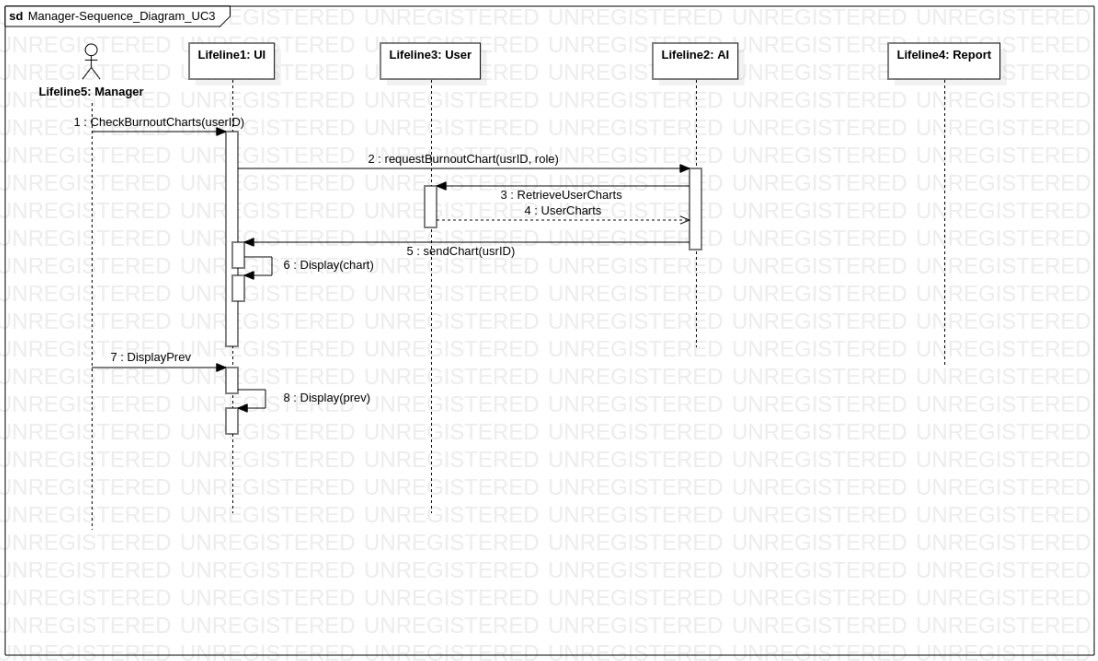
UC8 Check Employee burnout profile

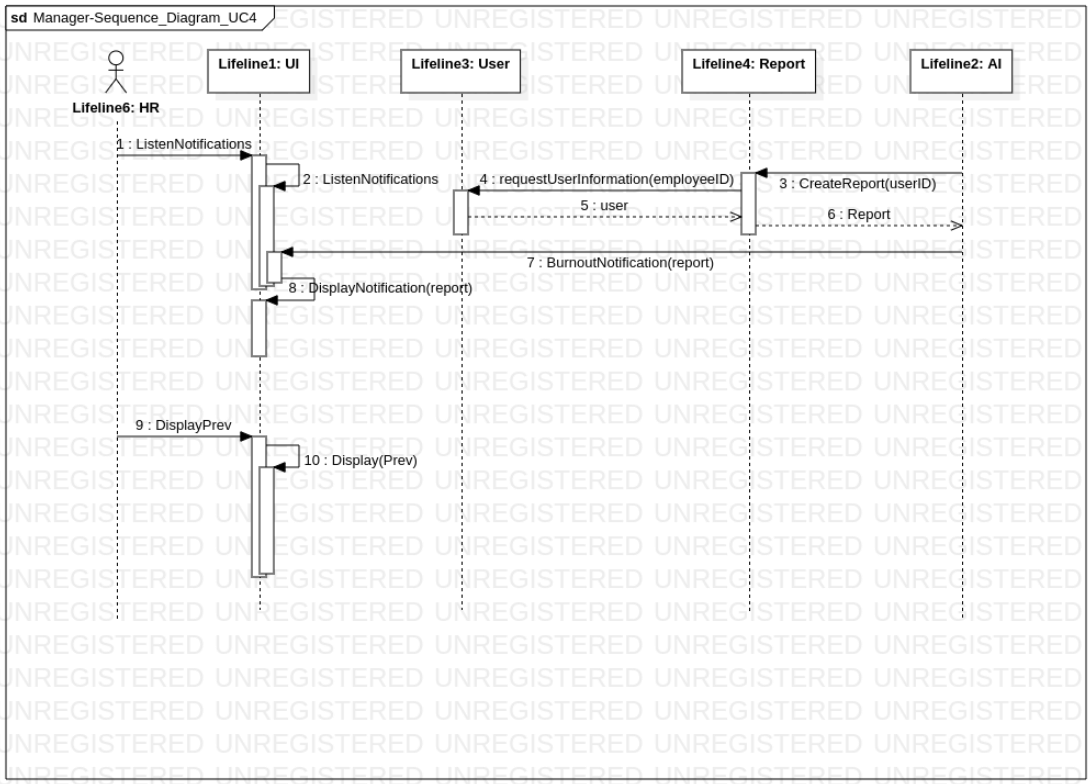
Contract: Display Employee Profile	
Operation	retrieveProfile(employeeId)
Cross References	UC8 Check Employee burnout profile
Preconditions	● A set of employee data has already been registered in the system . ● AI has created a profile for each of each employee based on bournout data.

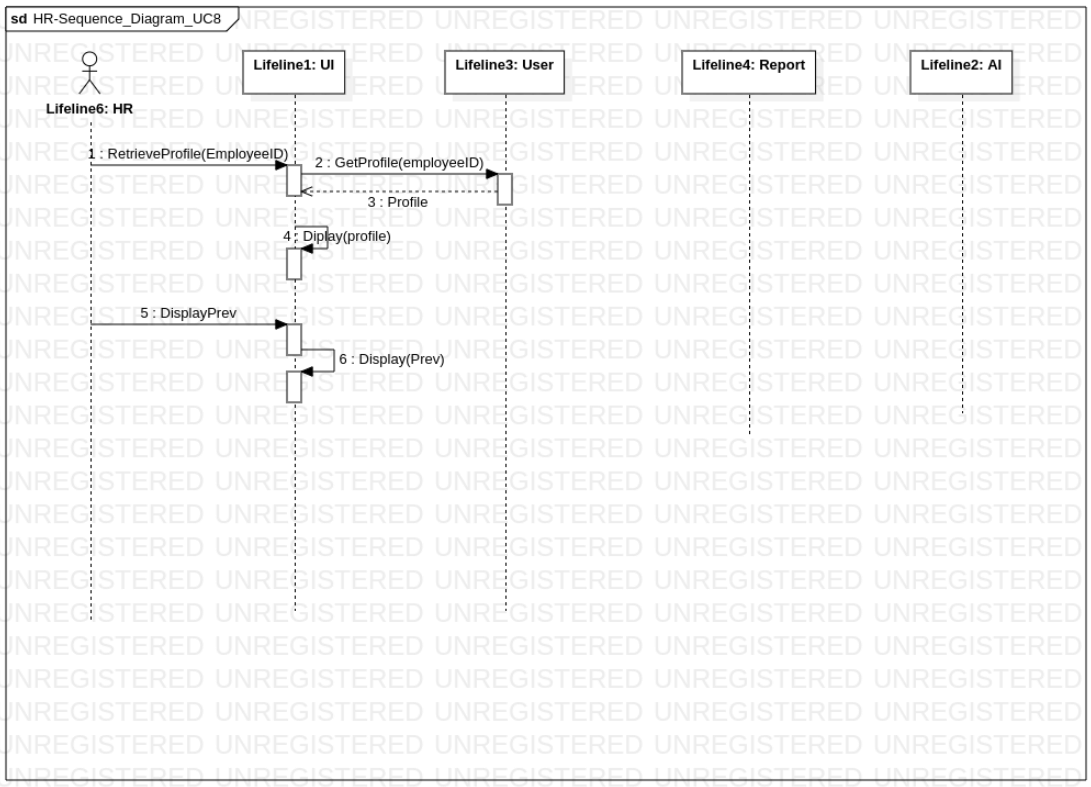
Postconditions	• The profile specifying the current status of an employee with regards to burnout.

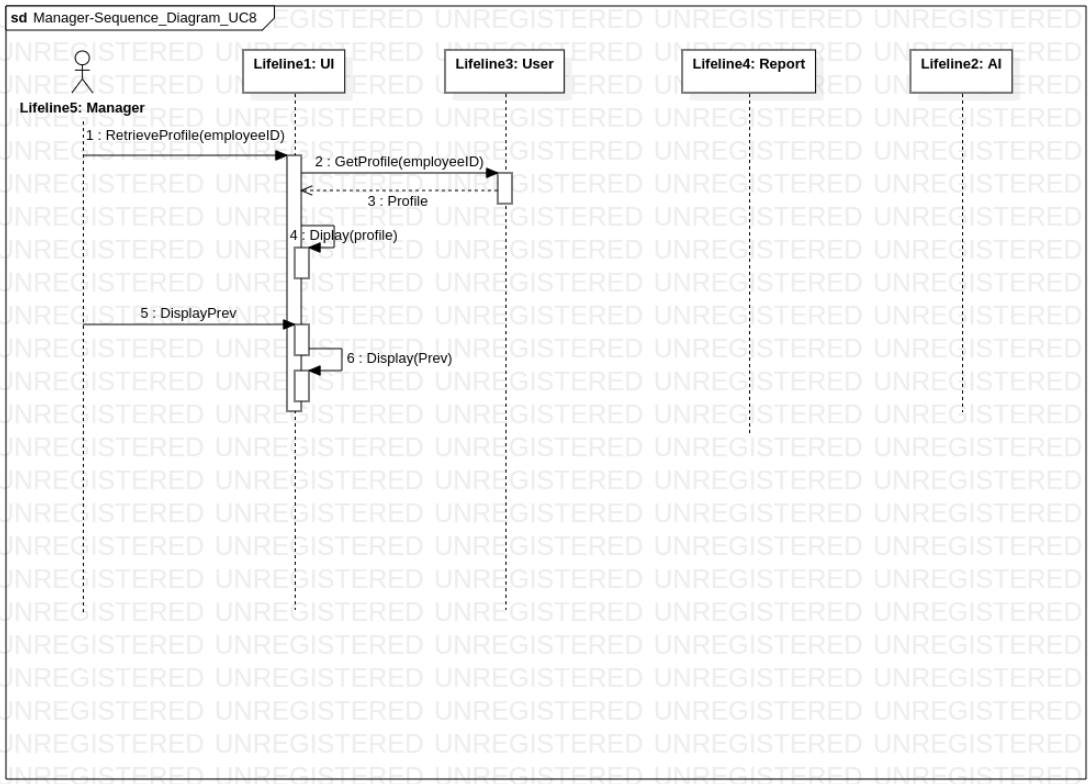
9.1.2 First iteration Design

9.1.2.1 Sequence diagrams

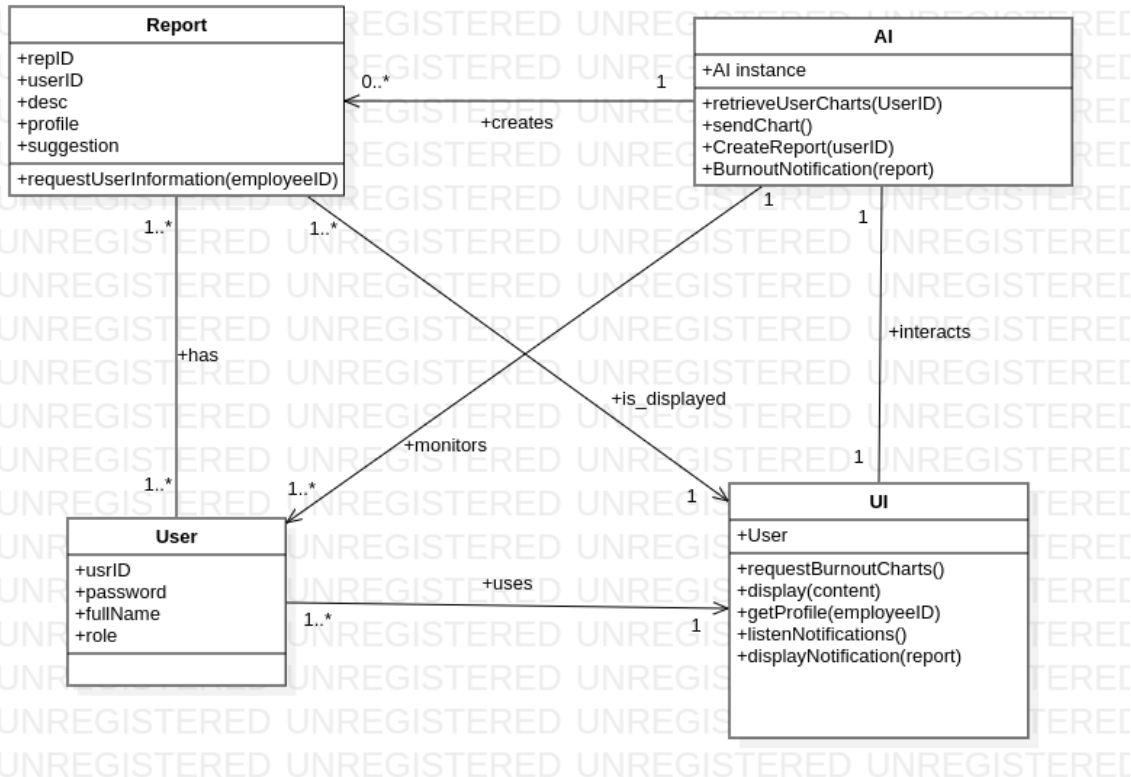



sd Manager-Sequence_Diagram_UC4
Lifeline6: HR
Lifeline1: UI
Lifeline3: User
Lifeline4: Report
Lifeline2: AI
1 : ListenNotifications
2 : ListenNotifications
4 : requestUserInformation(employeeID)
3 : CreateReport(userID)
5 : user
6 : Report
7 : BurnoutNotification(report)
8 : DisplayNotification(report)
9 : DisplayPrev
10 : Display(Prev)

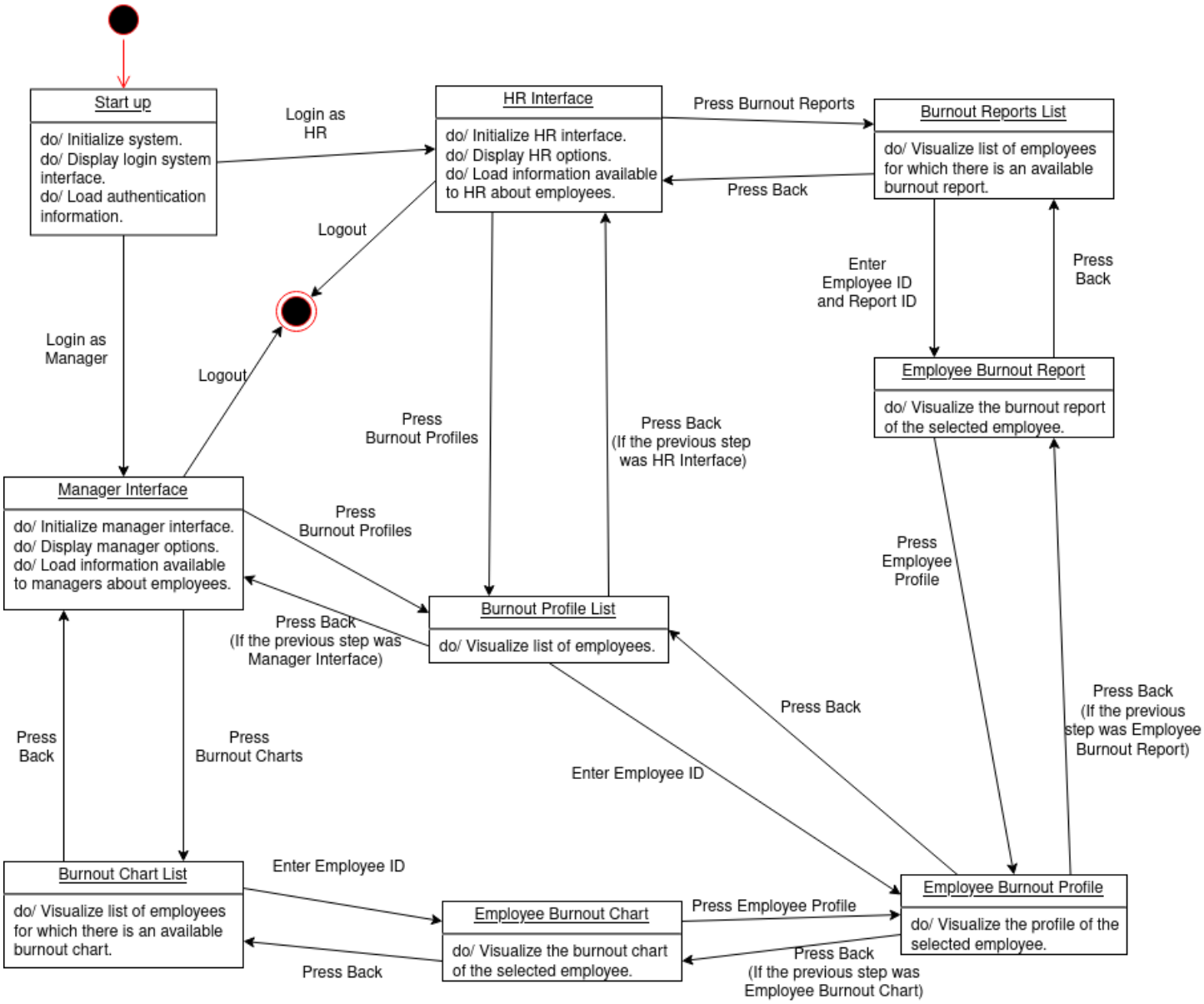

sd HR-Sequence_Diagram_UC8
Lifeline6: HR
Lifeline1: UI
Lifeline3: User
Lifeline4: Report
Lifeline2: AI
1 : RetrieveProfile(EmployeeID)
2 : GetProfile(employeeID)
3 : Profile
4 : Diplay(profile)
5 : DisplayPrev
6 : Display(Prev)



9.1.2.2 Class Diagram



9.1.2.3 Transition State Diagram



9.2 Second Iteration

9.2.1 Second iteration analysis

9.2.1.1 Expanded format use cases description

Use Case	Complete Survey
Actors	Employe
Purpose	Send a survey to an employee
Overview	When an employee arrives at work and logins into the system, occasionally short

	questionnaires about satisfaction and the worker's mental health shall be filled up.
Type	Primary
References	UC6 , UC7

Typical Course:

Actor	System
1. Employee logins into system	2. The system provides a short questionnaire
3. Employee answer the questionnaire (Survey)	4. System stores the information about the questionnaire

Alternative Courses:	1. Incorrect Credentials. Employee prompted to re-enter credentials. 3. Error must complete survey ,the employee does not answer all the questions

Use Case	Check Solution list
Actors	Human Resources
Purpose	To communicate to the HR employee which individuals have burnout and provide a list of possible solutions
Overview	When an HR employee logs into the system , it will be able to check the list of fitting possible solutions created for an individual that has show burn out syndrome
Type	Primary
References	UC6 UC7 UC8

Typical Course:

Actor	System
1. HR employee logs into the system	2. Displays the Login screen
3. Request solution list about an employee	4. The system provides list of fitting possible solutions created for an individual that has show burn out syndrome
5. HR decides on what solution to implement	6. The solution has been selected.

Alternative Courses:	1. Incorrect Credentials. Employee prompted to re-enter credentials. 3. That employee doesn't have burnout: The employee is promoted to re-enter the employee information 3. That employee isn't in the database: The employee is promoted to re-enter the employee information

9.2.1.2 Operation contracts

UC1 Complete Survey

Contract: FillSurvey	
Operation	FillSurvey(employeeId, surveyAnswers)
Cross References	UC1 Complete Survey
Preconditions	Employees must be logged in.
Postconditions	The survey with the surveyAnswers is sent to the employee.

Contract: ListenSurvey	
Operation	ListenSurvey()
Cross References	UC1 Complete Survey
Preconditions	Employees must be logged in.
Postconditions	A survey is sent to the user.

UC5 Check solution list

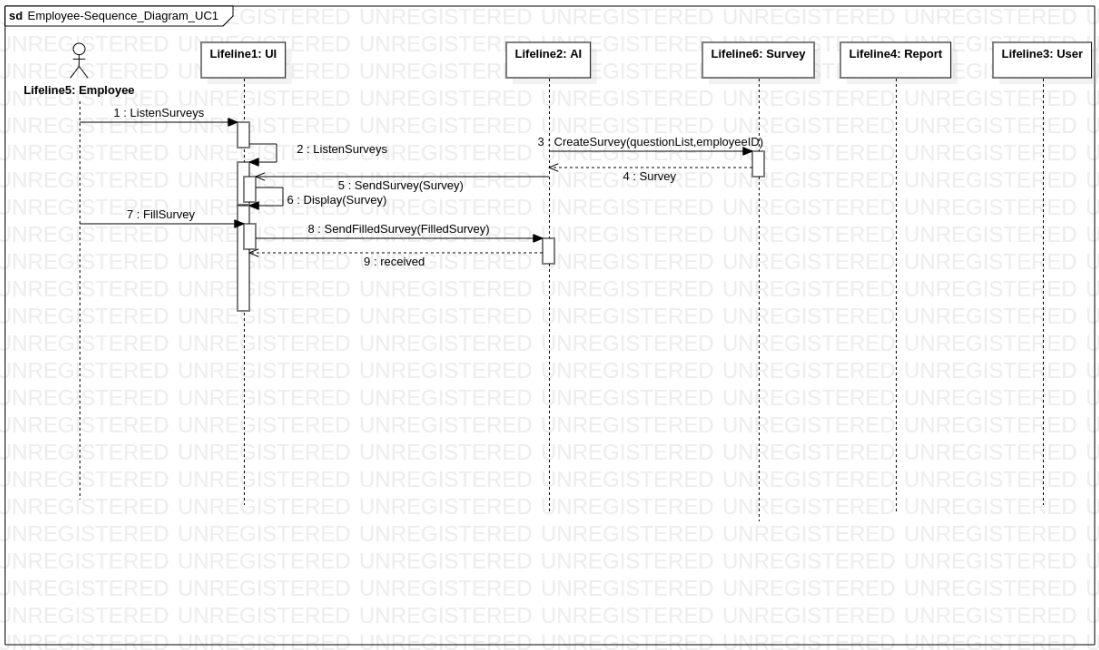
Contract: Retrieve Solutions	
Operation	retrieveSolutionList(reportID)
Cross References	UC5 Check solution list
Preconditions	User need to be logged in the system
Postconditions	A list of proposed solutions for the employee with employeeID is retrieved.

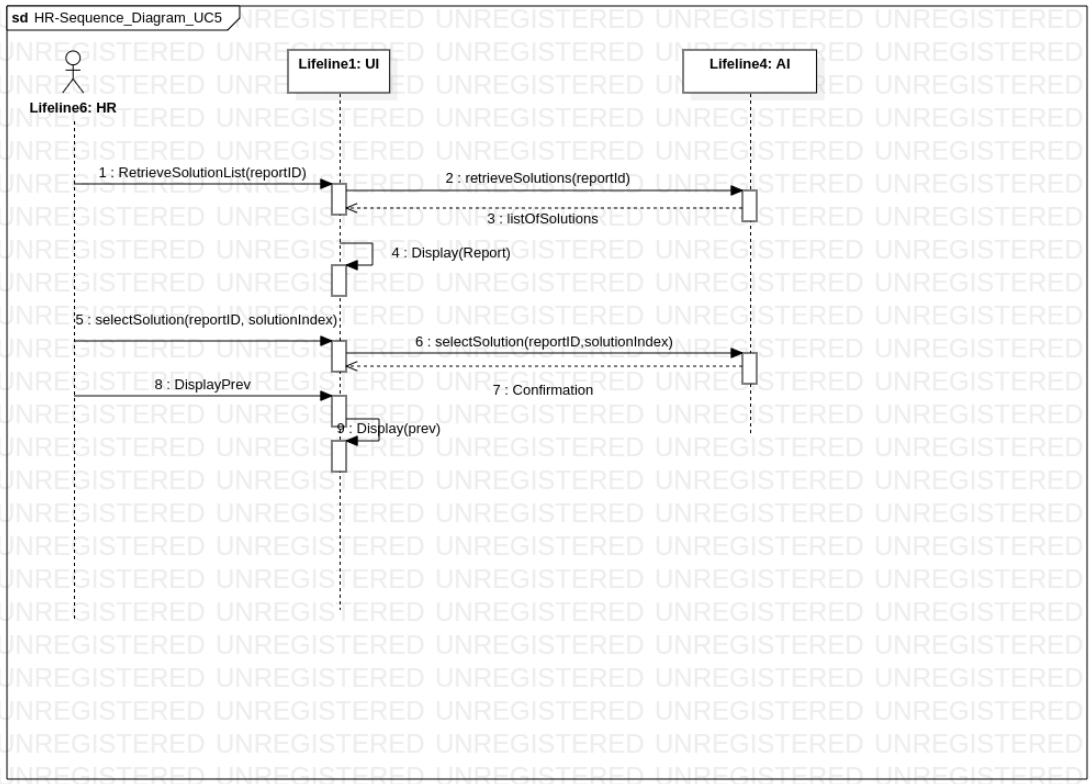
Contract: Select Solution	
Operation	selectSolution(reportID, solutionIndex)

Cross References	UC5 Check solution list
Preconditions	User need to be logged in the system
Postconditions	A solution from the list of solutions of the employee has been selected.

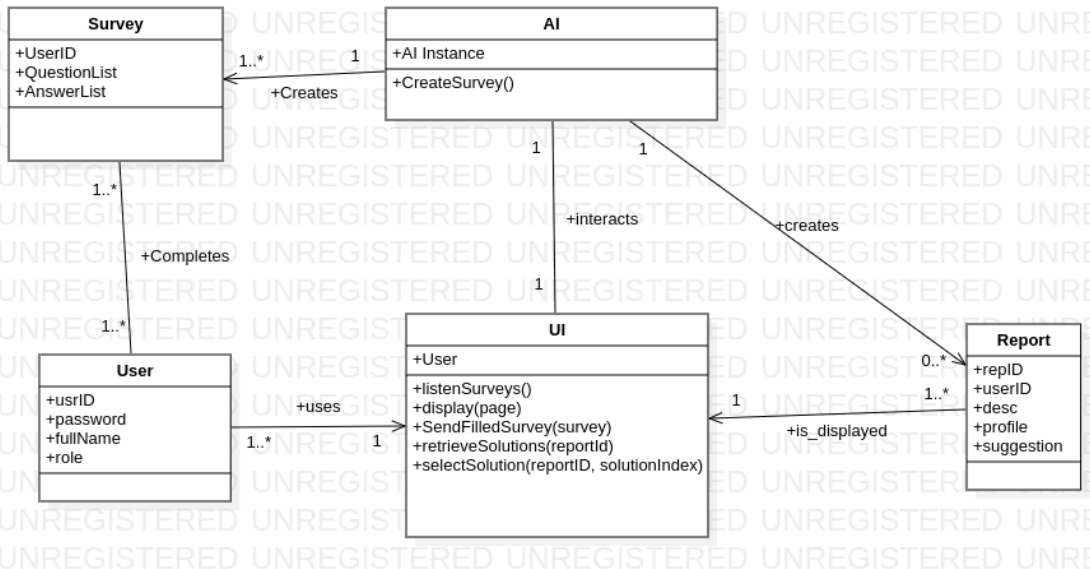
9.2.2 Second iteration Design

9.2.2.1 Sequence diagrams

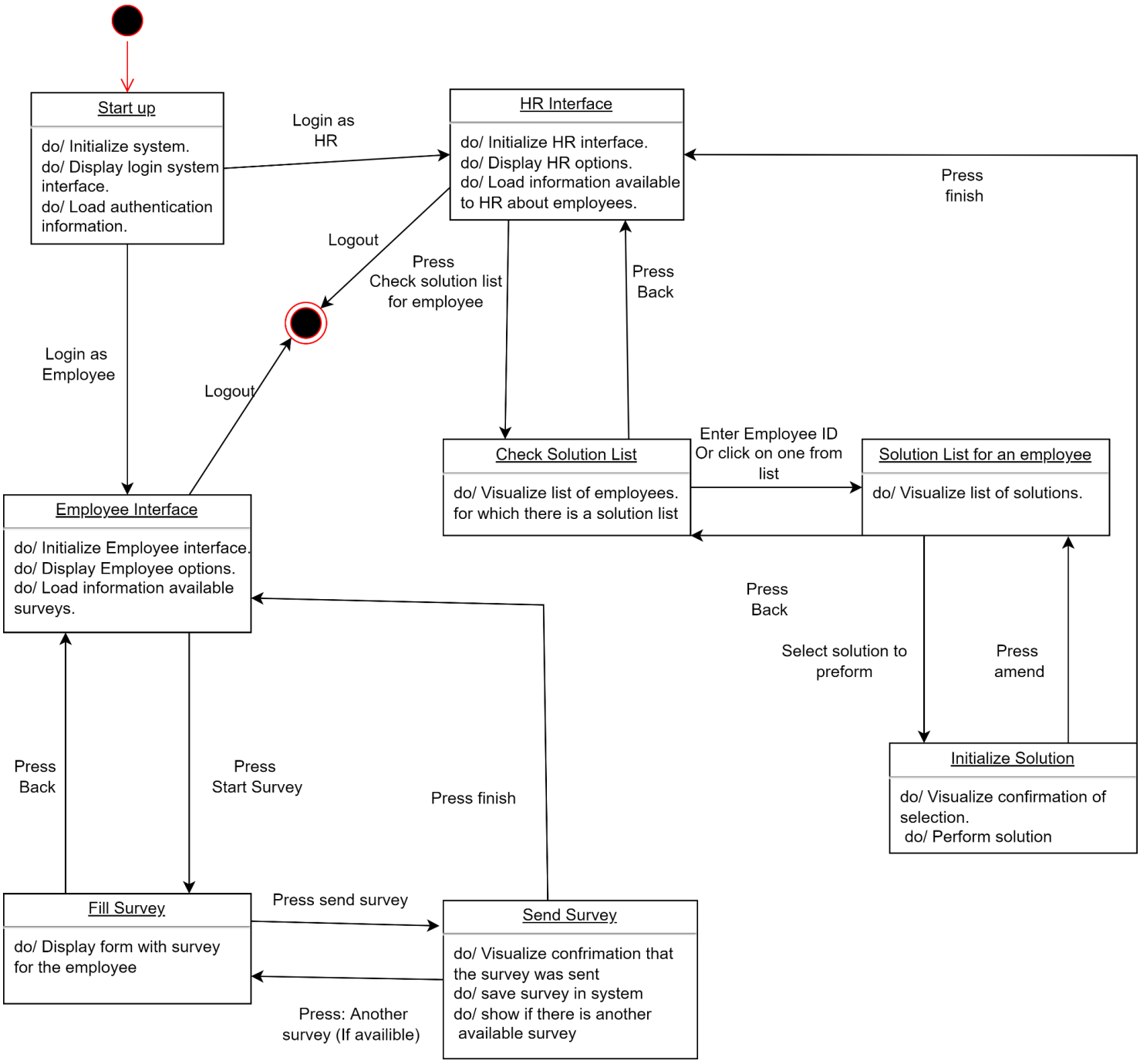




9.2.2.2 Class Diagram



9.2.2.3 Transition State Diagram



10. Execution of the quality plan

CE Code	CE Version	Review Plan	Date of Revision (DD/MM/YYYY)	Pass/ No pass	Comments
OFFER-000_0	1.0	Revision of estimate	25/02/2022	Pass	
BUDGET-001_0	1.0	Revision of estimate	25/02/2022	Pass	
USECASE(1)-100_0	1.0	Revision Of The Use Case Diagram	25/02/2022	No pass	Doesn't describe the whole behavior of the system. Point one
USECASE(2)-100_0	1.0	Revision Of The Use Case Diagram	25/02/2022	No pass	Doesn't describe the whole behavior of the system. Point one
USECASE(3)-100_0	1.0	Revision Of The Use Case Diagram	25/02/2022	No pass	Doesn't describe the whole behavior of the system. Point one
USECASE(4)-100_0	1.0	Revision Of The Use Case Diagram	25/02/2022	No pass	Doesn't describe the whole behavior of the system. Point one
BASELINEDESC-100_0	1.0	Revision of estimate	25/02/2022	Pass	
FUNCREQ_102_0	1.0	Document review	10/03/2022	Pass	
NFUNREQ_102_0	1.0	Document review	10/03/2022	Pass	
USECASDIAG-100_0	0.5	Revision Of The Use Case Diagram	10/03/2022	Pass	Previous configuration elements related to use cases deleted
USECASDIAG-100_1	1.0	Revision Of The Use Case Diagram	22/03/2022	Pass	
USECASHLD-103_0	1.0	Review Of High-Level Use Cases	22/03/2022	Pass	

USECASEPRIO-100_0	1.0	Review Of High-Level Use Cases	22/03/2022	Pass	
ESTIMATION-002_0	1.0	Revision of estimate	29/03/2022	Pass	
PLANNING-002_0	1.0	Planning Review	05/04/2022	Pass	
EXPANDEDUSECASES-100_0	1.0	Review Of Use Cases In Expanded Format	25/04/2022	Pass	
OPERATIONCONTRACTS-100_0	1.0	Review Of Operating Contracts	25/04/2022	Pass	
SEQDIAGRAM-100_0	1.0	Review Of Sequence Diagrams	02/05/2022	Pass	
CLASSDIAGRAMS-100_0	1.0	Class Diagram Review	02/05/2022	Pass	
STATETRANSDIAGRAM-100_0	1.0	Review Of State Diagrams	05/05/2022	Pass	

Table 12 Execution of the quality plan

11. Execution of the configuration management plan

Code	Previous version	Current version	Date (DD/MM/YYYY)	Relations	Name	Description / Changes	Project	Baseline	Type
OFFER-000_0	N/A	1.0	25/02/2022	Derived from: BUDGET-01_0	Offer	Definition of the offer for the project. Main objective, action plan etc.	Balanced	MILESTONE_0	Doc
BUDGET-001_0	N/A	1.0	25/02/2022	Derived from: USECASE(1-4)-10_0	Budget	Definition of the budget of the project.	Balanced	MILESTONE_0	Doc
USECASE(1)-100_0	N/A	1.0	25/02/2022	N/A	Use Case draft, use case 1	Use case 1 for use cases draft	Balanced	MILESTONE_0	Doc
USECASE(2)-100_0	N/A	1.0	25/02/2022	N/A	Use Case draft, use case 2	Use case 2 for use cases draft	Balanced	MILESTONE_0	Doc
USECASE(3)-100_0	N/A	1.0	25/02/2022	N/A	Use Case draft, use case 3	Use case 3 for use cases draft	Balanced	MILESTONE_0	Doc

USECASE(4)-100_0	N/A	1.0	25/02/2022	N/A	Use Case draft, use case 4	Use case 4 for use cases draft	Balanced	MILESTONE_0	Doc
BASELINEDESC-100_0	N/A	1.0	25/02/2022	Derived from: USECASE(1-4)-10_0 Dependent on : OFFER-00_0	Baselines	Definition and establishment of milestones.	Balanced	MILESTONE_0	Doc
FUNCREQ-102_0	N/A	1.0	10/03/2022	N/A	Functional Requirements	Definition of functional requirements	Balanced	MILESTONE_0	Doc
NFUNREQ-102_0	N/A	1.0	10/03/2022	N/A	Non Functional Requirements	Definition of non functional requirements.	Balanced	MILESTONE_0	Doc
USECASE(1)-100_1	1.0	2.0	10/03/2022	Succession of: USECASE(1)-100_0	Use Case draft, use case 1	Deletion of use case 1 CEs of the usecase draft, merged into USECASDIAG-100_0.	Balanced	MILESTONE_0	Doc
USECASE(2)-100_1	1.0	2.0	10/03/2022	Succession of: USECASE(2)-100_0	Use Case draft, use case 2	Deletion of use case 2 CEs of the usecase draft, merged into USECASDIAG-100_0.	Balanced	MILESTONE_0	Doc
USECASE(3)-100_1	1.0	2.0	10/03/2022	Succession of: USECASE(3)-100_0	Use Case draft, use case 3	Deletion of use case 3 CEs of the usecase draft, merged into USECASDIAG-100_0.	Balanced	MILESTONE_0	Doc
USECASE(4)-100_1	1.0	2.0	10/03/2022	Succession of: USECASE(4)-100_0	Use Case draft, use case 4	Deletion of use case 4 CEs of the usecase draft, merged into USECASDIAG-100_0.	Balanced	MILESTONE_0	Doc
USECASEDIAG-100_0	N/A	0.5	10/03/2022	Derived from: USECASE(1-4)-100_0	Use Case Draft Diagrams	Draft of the use case diagram. Obtained from previous CEs	Balanced	MILESTONE_0	Doc
USECASEDIAG-100_1	0.5	1.0	22/03/2022	Derived From: FUNCREQ_102-0, NFUNREQ_102-0 Succesion of : USECASDIAG-100_0	Use Case Diagram	Diagram of the use case model.	Balanced	MILESTONE_0	Doc
USECASEHLD-103_0	N/A	1.0	22/03/2022	Derived From: FUNCREQ_102-0, NFUNREQ_102-0, USECASDIAG-100_0	Use cases high level description.	High Level Description of all use cases	Balanced	MILESTONE_0	Doc
USECASEPRIO-100_0	N/A	1.0	22/03/2022	Derived From:	Use Cases prioritization	Prioritization table of Use Cases	Balanced	MILESTONE_0	Doc

				USECASEHLD-103_0					
ESTIMATION-200_0	N/A	1.0	29/03/2022	Derived From: USECASEDIAG-100_1, USECASEHLD-103_0	Cost/Effort Estimation	Calculating the cost of the project based on its requirements and use cases.	Balanced	MILESTONE_0	Exel
PLANNING-200_0	N/A	1.0	05/04/2022	Derived From: OFFER-000_0 BUDGET-001_0 USECASEHLD-103_0 ESTIMATION-002_0	Planning	Contains general structure and time chart for the proposed project.	Balanced	Milestone_0	MS project
USECASEDIAG-100_1	1.0	2.0	19/04/2022	Derived From: FUNCREQ_102-0, NFUNREQ_102-0 Succesion of : USECASDIAG-100_0	Use Case Diagram	Diagram of the use case model. (Updated to include proper connections)	Balanced	MILESTONE_0	Doc
EXPANDEDUSECASES-100_0	N/A	1.0	25/04/2022	Derived From: USECASEHLD-103_0 ESTIMATION-002_0 USECASEDIAG-100_1	Expanded Use Cases	Contains the expanded description of usecases	Balanced	Milestone_0	Doc
OPERATIONCONTRACTS-100_0	N/A	1.0	25/04/2022	Derived From: USECASEHLD-103_0 ESTIMATION-002_0 USECASEDIAG-100_1 EXPANDEDUSECASES-100_0	Operation Contracts	Definition of operation contracts for use cases.	Balanced	Milestone_0	Doc
SEQDIAGRAM-100_0	N/A	1.0	02/05/2022	Derived From: USECASEDIAG-100_1 OPERATIONCONTRACTS-100_0	Sequence Diagrams	Sequence Diagrams of different use cases	Balanced	Milestone_0	Doc
CLASSDIAGRAMS-100_0	N/A	1.0	02/05/2022	Derived From: USECASEDIAG-100_1	Class Diagrams	Class Diagrams	Balanced	Milestone_0	Doc

				OPERATIONCONTRACTS-100_0					
STATETRANSDIAGRAM-100_0	N/A	1.0	05/05/2022	Derived From: USECASEDIAG-100_1 OPERATIONCONTRACTS-100_0 CLASSDIAGRAMS-100_0	State Transition diagram	State Transition Diagrams	Balanced	Milestone_0	Doc

Table 13 Execution of the configuration management plan