

Artifacts of Inception

Vision and Business Case

It includes high level goals and constraints.

Goals:

- The main functionality of the system is that it will assign the different courses to the different Instructors for all the terms under different program which includes Bachelor, Master and PhD
- This system will help the instructor to give his preferences about which course he wants to take in which term and in which program.
- The instructor will have different types of preferences which varies from lowest to highest and accordingly the courses will be assign to him.
- The preference list will be generated after all the instructor have given his preferences.
- The system will help to solve this crucial task in effective manner.

Constraints:

- The scope of the system is limited to Computer Science field not for other fields.
- The system will be access by only University of Windsor.
- The system will be assigning the course to the Instructor.

Use Case Model:

It includes Functional Requirements (10%)

- There will 2 different view- admin view and instructor view.
- The courses will have CRUD operation and instructor will also have CRUD operation.
- The management of courses will be handled by admin and can be done manually also by admin.
- The division of courses according to term is a key functionality.
- The Preference list will have 3 different terms like course, Instructor and Program.
- Another key functionality is to assign instructor according to their preference.
- The updation of instructor after assigning the course to the instructor is also important functionality.

Supplementary Specification.

It includes key and mostly non functional requirements. It will help to define the performance attribute of the system. Some non functional requirements about the system are given below:

- The first non functional requirement is the usability of the system. The system will be affected by human factors such as attempting to login if not authenticated.
- The system will have help section will guide the user.

- The system will be reliability so that the system can behave consistently in a user-acceptable manner when operating in different environment.
- Some other non functionality attributes of the system – Performance, Scalability, Availability, Maintainability, Data Integrity.
- Other requirements are environment, compatibility requirement and design constraints.

Glossary

It contains domain terminology and data dictionary. The different terms used in the system is given by Glossary.

Courses- The different types of courses or subjects available for the system.

Program- The different program which includes Bachelor, Master and PhD.

Instructor- The instructor term describes the teacher of the course.

Preference List- The term is used to describe the preference given by the instructor before assigning the course.

Terms- The word describe the different intakes of the year like Fall, Winter and Summer.

Summer/Intersession12- It is a summer term which consists of 12 weeks.

Summer6- It is a 6 weeks Summer term.

Summer/Intersession6- It is a summer term which consists of 6 weeks.

Intersession6- It is a term which consists of 6 weeks.

Risk List and Management Plan

The risk management plan includes identifying the potential risk and mitigate the risk.

Different Types of Risk:

1. Technical Risk:
 - Management of Database and its updation is a potential risk.
 - Availability and Security Risk which are extremely inflexible.
2. Scheduled Risk:
 - Every iteration should be timeboxed and the work given to each member should be done and if it is not done the work should be the first task in next iteration.
3. Resource Risk:
 - It contains risk involving people available for team and domain expert not available for desire domain.
 - Another risk in resource risk over usage of the local system's resource and also how to optimize the cost.

Risk Management Plan:

- Regular Maintenance of the system so that the database updation is done regularly.
- Proper authentication of the user for the security risk.
- Efficient algorithm usage to optimize the usage of local device resources.
- Hiring of domain experts so that different domain risk can be mitigated.

Prototypes and Proof of Concepts

It contains building concepts of the system and validate technical ideas to implement the system.

Building Concept:

The proposed system for Teaching Assignment is that it will give a preference list which stats the course name, the instructor assigns to that course and in which term it is assign. The system would start by authentication for both admin and instructor. The instructor will be giving preference about the course he wants and in which term. Admin will consider his preference and then assign the course to him. The preference list will be generated after all the instructor has given their preferences.

Technical ideas.

- The confluence of above-mentioned concepts can be achieved through a system which can maintain data.
- For the prototype, the database has been configured using phpMyAdmin. In future, phpMyAdmin database can be used to store the data of the courses and the instructors. A system having CRUD functionality in any language can achieve this system concept. Here, prototyping is achievable through simple Java Console Application. Regarding the development, Eclipse can be used as it is very useful platform for developing web or console applications based on Java

Iteration Plan

The iteration plan consists of first elaboration phase. It includes varieties of identification, implementation, and test a small, initial set of architectural mechanisms. Steps in Iteration plan is given below:

- To produce a proven, architectural baseline for your system.
- To evolve your requirements model to the "80% completion point".
- To develop a coarse-grained project plan for the entire Construction phase.
- To ensure that the critical tools, processes, standards, and guidelines have been put in place for the Construction phase.
- To understand and eliminate the top-level risks of your project.

Phase Plan and Software Development Plan

It includes Tools, people, education and other resources.

Tools: Eclipse, java SE 8, PhpMyAdmin, Redmine.

People: Admin, Instructor, Project Manager.

Education: Knowledge about the different course and instructor and Program.

Other resources: Admin will have whole data about Programs, Instructor and the courses.

Development Case:

It includes Customization of UP steps and artifacts for the project.

- The first step is identifying the definition of the problem and create an abstract of the system
- Identifying the artifacts is the initial process in the software development. We identify all the contents of the artifacts.
- Redmine is used for project management and all the team members will update their work in Redmine.
- Github Repository is created to upload the work created by the each member of the team
- We created a database of the system and started working on the website development.

FURPS+

In UP, requirements are categorized according to the FURPS+ model.

1. Functionality

The main features of the system is that it will assign the course according to his preference and program. The system is capable to take preference of the instructor and also it will be updated if any instructor changes their preferences. In terms of security, the system is secured and it will only allow authenticated user to access the system.

2. Usability

- The user will be able to access the system easily even if the user don't know much about technology or how to use the system.
- The user will also be provided documentation or help frames about the working of system.

3. Reliability

- The bugs in the system will automatically detected and it will be removed periodically.
- The system will be periodically checked after every failure.
- The mean time between failure will be calculated for the system.

4. Performance

- The system will be available on every time except the maintenance period.
- There will be minimal usage of the local device resources
- The response time for every action will be calculated
- The accuracy of the system is a key part for the system so for that the system will be auto checking the action done

5. Supportability

- The system will be available on every platform for example it can works on windows OS as well as Mac OS.

The “+” of the FURPS+ acronym allows us to specify constraints including implementation, interface, operation, packaging, legal constraints.

Implementation

- Implementation includes resource limitations and Languages used to develop the system. Eclipse is used to develop the system using open source language Java.
- Database updatation can be considered as a resource limitation.

Interface

- Constraints faced by interfacing with the external environment.
- When you develop within an enterprise, quite often you must interact with external system.

Operation

- Backups will be done to check the operations done on the system.
- Handling of error is also one type of operation used for system management.

Packaging

- Project managing team will deploy the project on physical box.

Legal

- Licensing of the system in terms of legalization aspect.
- It includes copyrights to legal the system.