Software Engineering Lab Report I

CAMPUS RECRUITMENT SYSTEM

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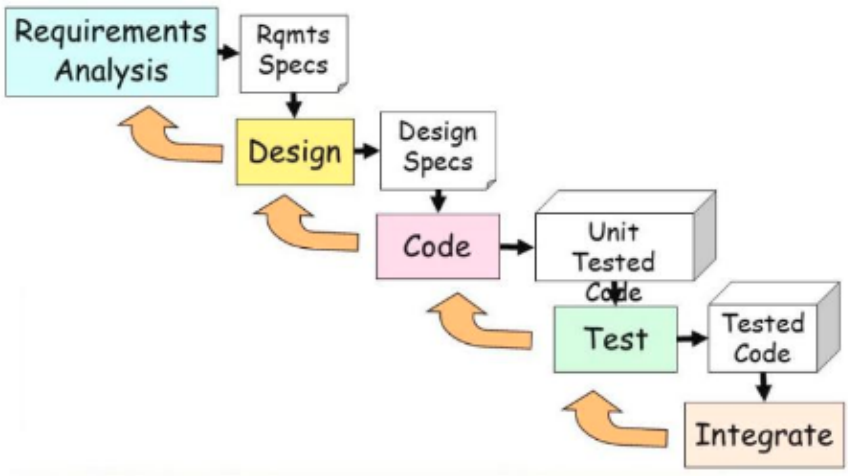
1. Process Model

1. Identify (and justify) the process model suitable for your chosen problem / project. Explain the steps / stages in the process model that would be suitable for your problem solving with suitable diagrams, if any, in the documentation.

Ans.

Waterfall Model With Backflow

Software process model chosen is : Waterfall model with Back-flow
The waterfall Model illustrates the software development process in a linear sequential flow. This means that any phase in the development process begins only if the previous phase is complete. In this waterfall model, the phases do not overlap.It is also referred to as a **linear-sequential life cycle model**.



Well you might be thinking why we choose Waterfall model with Back-flow ?

- It allows for departmentalization and control. A schedule can be set with deadlines for each stage of development and a product can proceed through the development process model phases one by one.

- Simple and easy to understand and use.
- Easy to manage due to the rigidity of the model. Each phase has specific deliverables and a review process.
- Phases are processed and completed one at a time.
- Well understood milestones.
- So in our project requirements are very well known, clear and fixed. We have Students, Company and Admin. Our Requirements are not ambiguous. The purpose and requirements for each of user is clearly understood and thus can proceed with the waterfall model.
- Also we mentioned “Back-flow” because it gives us advantages of visiting previous stages and can improve our previous stages if required. So, this is best suited model for our project.

Different stages of “Waterfall model with Back-flow” folowed for our project are as follows:

-> **Stage-1**: **Requirement Gathering and analysis**
All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification document.

Work To Be Done By our Team in this Stage:

- The roles of users – Admin, Students and Company are understood and documented.
- We will decide What should system do? What user Should do? Why? When? Etc. Questions will be answered.
- All the requirements stated are thoroughly analyzed . We will define the Entity-Relationship Diagram for each of the entities . We will also define the core assumptions and constraints and refine the Data Flow Diagrams an produce User Interface Specifications.In case required, we may backtrack to Requirements Elicitation phase as well.

Document To be generated in this Stage:

FRS – Functional Requirement Specifications and SRS-software requirement specifications are produced and are validated by the business users.

-> **Stage-2: System Design:**

The requirement specifications from first phase are studied in this phase and the system design is prepared. This system design helps in specifying hardware and system requirements and helps in defining the overall system architecture.

Work To Be Done By our Team in this Stage:

- In this stage we include the design of application, network, databases, user interfaces and system interfaces.
- This phase shall define the “how” part of the system. If needed, we will revisit the prior phases .

Document To be generated in this Stage:

The document generated is verified from the SRS produced during the requirement phase. Any changes or constraints related to requirements are understood and dealt with.

-> **Stage-3 : Implementation & coding**

With inputs from the system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality, which is referred to as Unit Testing.

Work To Be Done By our Team in this Stage:

- This includes implementation of the design specified in the design document into executable programming language code

Document To be generated in this Stage:

Here Source Code is produced in particular programming language.

-> **Stage-4: Integration and Testing:**

All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.

Work To Be Done By our Team in this Stage:

- In this stage the combined set of programs are tested together with associated control data, usage procedures, and operating procedures, to determine whether they are fit for use .

Document To be generated in this Stage:

An Installation and User Manual and Deliverable System code is prepared for the system.

-> **Stage-5:Deployment of system:**

Once the functional and non-functional testing is done; the product is deployed in the customer environment or released into the market.

Work To Be Done By our Team in this Stage:

- For this phase Installation manual prepared phase is used. At times, software needs post-installation configurations at user end. Software is tested for portability and adaptability and integration related issues are solved during installation. Finally the software is tested by Business user for fitness for use.So basically it is completely a user phase.

Document To be generated in this Stage:

System Installed and Tested at Customer site.

-> **Stage-6: Maintenance:**

There are some issues which come up in the client environment. To fix those issues, patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

Work To Be Done By our Team in this Stage:

- The software is maintained timely by updating the code according to the changes taking place in user end environment or technology.
- This is where we need back-flow mostly.
- This phase may face challenges from hidden bugs and real-world unidentified problems.

Document To be generated in this Stage:

Here only if software fails at customer site then we need to fix nothing else.

And here's our software is completed.

2. Tools

S.No	Step / Stage	Tool Name	About the Tool
1	**Design**	**Lucidchart**	Lucidchart is an online flow-chart maker used by more than 7 million people around the world to create flowcharts, network diagrams, ER diagrams, UML diagrams, mind maps, and more. Because of its intuitive user interface and collaborative features, it is the most popular online visio alternative.Lucidchart is one of the most popular productivity apps for G Suite, Confluence, JIRA, Jive and many other leading platforms. **We used Lucid chart in making context diagram and data flow diagrams.**
2	**Design**	**ERDPlus**	It is a web-based database modelling tool that lets you quickly and easily create: 1.Entity Relationship Diagrams (ERDs) 2.Relational Schemas (Relational Diagrams) 3.Star Schemas (Dimensional Models) **We used it in making ERD.**
3	**Development , Integration and Testing , Maintenance**	**Android Studio**	• Android Studio is the official Integrated Development Environment (IDE) for Android app development, based on

IntelliJ Idea. On top of IntelliJ's powerful code editor and developer tools, Android Studio offers even more features that enhance your productivity when building Android apps, such as:

- A flexible Gradle-based build system
- A fast and feature-rich emulator
- A unified environment where you can develop for all Android devices
- Instant Run to push changes to your running app without building a new APK
- Code templates and GitHub integration to help you build common app features and import sample code
- Extensive testing tools and frameworks
- Lint tools to catch performance, usability, version compatibility, and other problems
- C++ and NDK support
- Built-in support for Google Cloud Platform , making it easy to integrate Google Cloud Messaging and App Engine.
- In Android Studio , Java Language would be used.

			We used Android studio in development & coding part for programming in java, making UI in xml. **We used Android Studio in Integration and testing part if during testing software fails or something is to be changed or added .** **We used Android Studio in Maintenance part if during maintenance phase if customer demands more features.**
4	**Development , Integration and Testing , Maintenance**	**SQLite**	SQLite in android will be used for saving data to a database is ideal for repeating or structured data, such as contact information. **We used SQLite in development & coding part for storing database.** **We used SQLite in Integration and testing part if during testing software fails or more databse to be added .** **We used SQLite in Maintenance part if during maintenance phase if customer demands more features.**
5	**Design**	**ARGOUML**	**ArgoUML** is an UML diagramming application written in Java and released under the open source Eclipse Public license. By virtue of being Java application, it is available on

			any platform supported by Java SE.
			We used Argouml in making uml diagrams.
6	**All stages**	**LibreOfficeWriter**	Writer has all the features you need from a modern, full-featured word processing and desktop publishing tool. It's simple enough for a quick memo, but powerful enough to create complete books with contents, diagrams, indexes, and more. You're free to concentrate on your message, while Writer makes it look great. **It is used by us in submitting assignments of software engineering.**

3. Summary

So our project is campus recruitment system which is basically to facilitate student in college , company to register and communicate with placement office .The users can access easily to this and the data can be retrieved easily in no time. In the main page there are options for a new register, a registered student to directly login using username and password, submit resume. In the student registration form,we can give personal details, educational qualifications, and professional skills and upload resume. The job details of the placed students will be provided by the administrator. The administrator plays an important role in our project. They provide approval of student registration and updating.So we are making android application for campus recruitment system .
In this report we mentioned the process model required for our software which is waterfall model with backflow and the reasons for choosing and brief description of each phase .

Further we have described tools Lucidchart , ERDplus , ArgoUML , Android studio , SQLite which are required in developing our software . So in future we are going to work with all these tools and we will successfully develop android app for campus recruitment system.

END