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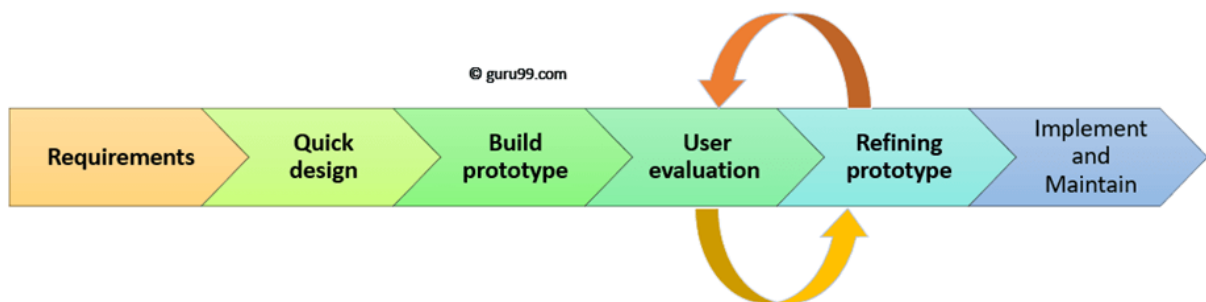
Academic Year: 2020-21	
SUBJECT: Software Engineering CLASS: SE (I) SEMESTER: IV	
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ASSIGNMENT NO.: 1	DATE OF SUBMISSION:

Title of assignment: Select appropriate SDLC for your mini project and justify it.

Theory:

Prototyping Model is a software development model in which prototype is built, tested, and reworked until an acceptable prototype is achieved. It also creates base to produce the final system or software. It works best in scenarios where the project's requirements are not known in detail. It is an iterative, trial and error method which takes place between developer and client.

Prototyping Model Phases



Prototyping Model has following six SDLC phases as follow:

Step 1: Requirements gathering and analysis

A prototyping model starts with requirement analysis. In this phase, the requirements of the system are defined in detail. During the process, the users of the system are interviewed to know what is their expectation from the system.



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Step 2: Quick design

The second phase is a preliminary design or a quick design. In this stage, a simple design of the system is created. However, it is not a complete design. It gives a brief idea of the system to the user. The quick design helps in developing the prototype.

Step 3: Build a Prototype

In this phase, an actual prototype is designed based on the information gathered from quick design. It is a small working model of the required system.

Step 4: Initial user evaluation

In this stage, the proposed system is presented to the client for an initial evaluation. It helps to find out the strength and weakness of the working model. Comment and suggestion are collected from the customer and provided to the developer.

Step 5: Refining prototype

If the user is not happy with the current prototype, you need to refine the prototype according to the user's feedback and suggestions.

This phase will not over until all the requirements specified by the user are met. Once the user is satisfied with the developed prototype, a final system is developed based on the approved final prototype.

Step 6: Implement Product and Maintain

Once the final system is developed based on the final prototype, it is thoroughly tested and deployed to production. The system undergoes routine maintenance for minimizing downtime and prevent large-scale failures.

Advantages of the Prototyping Model

Here, are important pros/benefits of using Prototyping models:

- Users are actively involved in development. Therefore, errors can be detected in the initial stage of the software development process.
- Missing functionality can be identified, which helps to reduce the risk of failure as Prototyping is also considered as a risk reduction activity.
- Helps team member to communicate effectively
- Customer satisfaction exists because the customer can feel the product at a very early stage.
- There will be hardly any chance of software rejection.
- Quicker user feedback helps you to achieve better software development solutions.
- Allows the client to compare if the software code matches the software specification.
- It helps you to find out the missing functionality in the system.
- It also identifies the complex or difficult functions.
- Encourages innovation and flexible designing.



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- It is a straightforward model, so it is easy to understand.
- No need for specialized experts to build the model
- The prototype serves as a basis for deriving a system specification.
- The prototype helps to gain a better understanding of the customer's needs.
- Prototypes can be changed and even discarded.
- A prototype also serves as the basis for operational specifications.
- Prototypes may offer early training for future users of the software system.

Disadvantages of the Prototyping Model

Here, are important cons/drawbacks of prototyping model:

- Prototyping is a slow and time taking process.
- The cost of developing a prototype is a total waste as the prototype is ultimately thrown away.
- Prototyping may encourage excessive change requests.
- Some times customers may not be willing to participate in the iteration cycle for the longer time duration.
- There may be far too many variations in software requirements when each time the prototype is evaluated by the customer.
- Poor documentation because the requirements of the customers are changing.
- It is very difficult for software developers to accommodate all the changes demanded by the clients.
- After seeing an early prototype model, the customers may think that the actual product will be delivered to him soon.
- The client may lose interest in the final product when he or she is not happy with the initial prototype.
- Developers who want to build prototypes quickly may end up building sub-standard development solutions.

Justification of suitability of software development model to your project:

Requirements Gathering:

1) What are the basic features the client wants to implement in his webapp?

Ans. Text Utils is basically web application where you can use various features which you have to operate on your text content or text files

2) Does the client want these features to be login protected or completely free?

Ans: Yes, the client wants the website login protected



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3) What are the features the client wants to implement in the webapp?

Ans. 1) SPEECH RECOGNITION 2) SENTIMENT ANALYSIS

3) AUDIO TRANSCRIBING 4) VIDEO TRANSCRIBING

5) TEXT SUMMARIZER 6) URL LINK SHORTENER

7) PDF MERGING 8) TRANSLATOR

9) PROFANITY FILTER 10) WORD CLOUD

11) TEXT EXTRACTOR 12) IMAGE SIMILARITY

4) Does the client want his features to be Categorized or in Linear Fashion?

Ans: Linear Fashion

5) Does the client want a Introductory landing page which displays About the webapp or simply display the working page?

Ans. The client requested for a landing page which displays few demo features and also a About section to give the detailed information about the Webapp

Quick Design:

We designed the basic framework of the website using HTML for ground structure of the website and CSS to beautify and orient the components/features. In quick design section we only developed the Front End of the website to give a quick glance of how the website will look like, thus this will help us in building the prototype.

Building Prototype:

Initializing the project by developing a skeleton structure of the project using HTML. After creating the structure, we used CSS styling Sheet and JavaScript to design and give proper orientation to various components of the webpage. Then we added all the features requested by client.

We have created all the features using Django for Backend which is a Web Development Framework of Python.

Frontend:

1) **HTML:** HTML is the markup language that we use to structure and give meaning to our web content, for example defining paragraphs, headings, and data tables, or embedding images and videos in the page.



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2) **CSS:** CSS is the language for describing the presentation of Web pages, including colors, layout, and fonts. It allows one to adapt the presentation to different types of devices, such as large screens, small screens, or printers.

3) **BOOTSTRAP:** Bootstrap is a giant collection of handy, reusable bits of code written in HTML, CSS, and JavaScript. It's also a frontend development framework that enables developers and designers to quickly build fully responsive websites.

4) **JAVASCRIPT:** JavaScript is a scripting language that enables you to create dynamically updating content, control multimedia, animate images, and pretty much everything else. (Okay, not everything, but it is amazing what you can achieve with a few lines of JavaScript code.

5) **JQUERY:** jQuery is a JavaScript library designed to simplify HTML DOM tree traversal and manipulation, as well as event handling, CSS animation, and Ajax.

Backend:

1) **PYTHON:** Python is an interpreted, high-level and general-purpose programming language. Python's design philosophy emphasizes code readability with its notable use of significant indentation.

2) **DJANGO:** Django is a Python-based free and open-source web framework that follows the model-template-views architectural pattern.

Database:

1) **SQLITE3:** SQLite is a relational database management system contained in a C library. In contrast to many other database management systems, SQLite is not a client-server database engine. Rather, it is embedded into the end program

User Evaluation and Refining Prototype:

After presenting the prototype to client we encountered the following issues:

- 1) Improper orientation of few components required changes.
- 2) Missing Validations.
- 3) Few Features like Audio and Video Transcribing should support multiple languages.



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As mentioned above are the user evaluation provided to the developer by the client. In the refining process, our aim was to overcome these issues and rebuilding the prototype and again showing it to the client for further evaluation and thus the cycle continues until the client satisfies.

Implement and Maintain:

After successfully refining the prototype and modifying the website according to the client's expectation the final steps are implementing the final product by localizing the host website on the internet. After hosting the website and after multiple user experience and feedbacks, we had to undergo maintenance of the website for any bugs or issues we collected from client as well as user feedback.

Conclusion:

Hence, The Project – **TextUtils** is successfully deployed by using the **Prototyping Model** which fulfilled the expectations and requirements of client.