Assignment no: 01

Software Construction

Name: Rehan Abu Hashir 10673

Question: 01

Answer the following:

a. **You have learnt different software process models; your task is to consider the following scenario and identify the process model which will fit according to the situation and briefly describe all the tasks/phases.**
b. **We have discussed software process improvement in detail, considering the following scenario what do you think are the steps to implement software process improvement describe in detail.**

Scenario # 01:

Rush Force is a computer video game which is designed to develop a multiplayer online competitive video game that to be appreciated by the local users. In order to create the game, team brainstormed about what type of game they and their target audience would be most interested in, while attempting to create something new and innovative. Multiplayer games have always been present throughout computing history and how storyline impacts emotional, motivational & physiological responses to First- person shooter video games, but everything became greater in scale and more diverse in players. Multiplayer FPS games are one of the most popular ones. FPS is a computer game genre that centers the gameplay on a gun- and projectile weapon-based combat through the first-person perspective, i.e., the player experiences the action through the eyes of a protagonist. Rush Force Game is an interactive multiplayer game with a textual interface, in which the player explores a series of interconnected rooms, collecting artifacts, and confront other players. The set of rooms, artifacts, and players can be extended or replaced to give different game variations

The first version will start by creating and implementing the essential foundations of the sport, like characters, the sport environment, basic weapons and means of transportation, and will become increasingly more complex. The initial version is going to be developed for the PC, but future versions are going to be developed for gaming stations.

a) Spiral Model

1. Planning

- Gathering requirements (via brainstorming, interviews, and a feedback form from a current FPS game user)
- Completed set of specifications (plot, online multiplayer, sample game (FPS), Rush Force (text-based interface, player explores a network of connected rooms, gathers artefacts, and engages in combat with other players))

2. **Design**

- Architectural design (basics of the sport);
- Modules are logically laid out (sport environment)
- Designing prototypes (Characters, weapons, transportation)

3. Construction

- Design is being developed, including the creation of a multiplayer base, an interface, an environment, connected rooms, character creation, and the transportation of weapons.
- Building phase (higher clarity on requirements and design a working model)
- Users and players are sent these builds (versions) for feedback.

4. Evaluation and Risk Analysis

- Validating (determining whether generated software satisfies user requirements through code testing or tester-run software)
- Checked to see if the software development is proceeding as planned (working to a schedule)
- At the conclusion of the first iteration, following build testing (user evaluates the software and provides the feedback)

b) Software Process Improvement

1. Current Situation Evaluation

- Multiplayer internet video games with competition
- Intended audience (game plyer)
- Effects of the plot on first-person shooter video games (gameplay around a gun, projectile weapon-based combat)
- Rush Force Video Game (multiplayer game with a textual interface, player explores a series of interconnected rooms, collecting artifacts, and confront other players)

2. Improvement Planning

- Goals (terms of performance)
- Measures (accomplishing these goals) (one or two measures for each goal)
- Projects (referred to as “initiatives,” projects) (implement one or two initiatives for every goal.))
- Put your plan into action and track your progress.

3. Improvement Implementation

- Time frame you decided has been achieved, look those factors that have affected the delivery time, and measure the overall impact on your business.
- **Be customer centric**
  - Conducting customer interviews
  - Collection of available customer feedback data;
  - Customer data extraction and analysis

  Automate all your processes to improve quality and reduce costs by incorporating technology.

Design the improvement plan

- **Consider the scope of the change:** If you aim to make change then creating a process improvement project team. The team should include employees from each department that will be affected by the transformation plan.
- **Ensure the process standardization:** The changes should ensure that it standardizes the process while improving quality.
- **Choose a large sample to test:** You must run sample of cases on your testing across your large sample multiple times, ensuring the consistency of results.
- **Collect feedback:** During testing, ask employees and if applicable customers for their feedback to see if the changes require modifications.

Monitor and optimize

After the testing, your team should keep monitoring the rollout to detect anything they might have missed during the test phase or require further enhancement. For this stage, your team must compare the results of the changes against the goals and metrics you set in your planning. Then, you must compare the results of new and old processes to assess the level of improvement.

4. **Improvement Evaluation**

- Identify issues and improve the overall process of your training program
- Analyze the effectiveness of training materials and other tools
- Determine leadership competencies needed to solve critical problems
- Support continuous change in career development.

Scenario # 02:

Repair Karwalo is project focused on the problem that we face in our daily life that is finding of service man at door step, means whenever we need any sort of work done at our home we have to visit nearby shop for finding a person and then after letting the shopkeeper know that we need a person they give us appointment of same day if the service man is free otherwise it takes may be days for getting that issue fixed as that electrician or plumber is not free so we have to wait long for getting that thing fixed. So, this is the reason that this application is created which will help us to do this kind of jobs fixed at home by just a single click. The idea of this app is to bring up the service man and the client on the same page where a client can easily call the service man by just a single click on our application.

How this works, when a client will come to the application, he or she will select his or her location and then they will select the service that they want at home. Once they select the service that they need at home then they will click done. Once they will book the servicemen then application will let the person know that how much time will it take the serviceman to arrive at their doorstep and they can easily track the person. They can also check rough fair rates that how much it would cost for getting any kind of work done on run time. If the work increases than price will vary but they can check the fair rates on run time as well by selecting the service. The main objective of this project is to create a user friendly and cost effective mobile application that will provide ease of life and assistance to the people of Pakistan in difficult time by providing services such as AC Maintenance, Electrician, Plumber etc.

Solution

a) RAD Model (Rapid Application Development)

1. Business Modelling

- Obtain information from relevant sources (brainstorming, interviews, feedback forms (from service engineers (AC maintenance, electricians, plumbers), consumers)), on-site surveys (home, store, office, site).
- Have a service technician on your doorstep
- Daily life problems (finding people in stores (service technicians), air conditioning maintenance, electricians, plumbers)

2. **Data Modelling**

• Analysis (information collected in previous phases)
• Classify according to different categories
 Housing (fees, services (air conditioner maintenance, electricians, plumbers), location)
 Office (rates, services (air conditioner maintenance, electrician, plumber), location,)
 Shop (rates, service staff availability (AC maintenance, electrician, plumber), location, hours, truck service staff)

3. Process Modelling

- Changes and optimizations can be made during the process modeling phase
- Outline the process for modifying, adding, removing, or retrieving data objects.

4. **Application Generation**

- Create architectural design of home, offices, shops requirements
- Using automation tools convert process and data models into actual prototypes.
- Creating components and full prototypes to be tested in the next phase.

5. Testing & Turnover

- Testing done with the help of (Tester, consumer, serviceman on site location)
- Every model is independently tested during every iteration to identify and adapt the components quickly to create the most effective product.
- During development if new components are added in process during testing so testing of new component is essential (to remove error earlier).

b) Software Process Improvement

1- Current Situation Evaluation

- Finding of service man at door step
- Daily life problems
- Service man and the client on the same page
- Client will select location and then they will select the service that they want at home.
- Check the fair rates on run time as well by selecting the service

2- Improvement Planning

Full overview of the process that needs improvements. Take that process and break it down into a map. You can use a free work breakdown structure from Project Manager to thoroughly map every step of the process. You need to analyze the process to see where

the issues might lie. Once you have found those problem spots, trace back the issue to its origin in order to address its cause and how to avoid it in the future. Get their ideas on how to redesign the process and brainstorm with them for more solutions. The better your communication, the better the project. Therefore, take the time to communicate your plan to the team and make sure they fully understand their part. Monitoring is not Micromanaging. It provides a window into the project and allows for any tweaks to keep it moving as scheduled.

3- Improvement Implementation

1. Upgrade service quality
2. Improve delivery times
3. Reduce billing cycles
4. Make production more efficient
    - Performance to understand pain points and determine/validate root causes. To be able to do the best analysis you need to be able to have the most accurate and clear data.
    - Establish clear lines of communication and leave adequate time for testing and feedback so that if a process needs to be refined again, there's time to do so.

Once a process has been changed with the intention of improvement, it's necessary to review it to make sure that it's working as expected. Continues to change, you'll have to set continuous check-ins, as well as trainings so that the formal processes continue to be implemented as desired.

4- Improvement Evaluation

Feedback questionnaires, evaluations, and analysis of the final report revealed a number of issues related to SME SPI. Discuss elapsed time from assessment to follow-up meeting, company size, need for mentoring, company readiness for his SPI, role of company owner/manager, and evaluator advice. It empowers practitioners and consultants to implement software process improvements, increasing the chances of small software development companies to be successful in national and global markets.