**Assignment 1**

* **Submitted to. :**

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1. **Ammara Khalid** has done *Example 1* and *Example 2* of *Question 1*.

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**Question 1**

## Provide two examples of software projects that would be amenable to the linear sequential model. Be specific.

* **Example 01:**
* **Stated Problem:**

In a hotel manual system is used for managing the data but in modern world and business international trade owner of a hotel wants hotel management software, which provides information of customers, staff members of various departments and some of detail regarding to hotel. This will help to maintain the data of hotel and their transactions on a day to day basis. Customer wants to check when the project is near to end.

#### Stated facts:

* We want to create a hotel management system.
* It is aimed at organization and automation of process related to hotel management.
* This project will benefit the hotel in managing information about customers, staff members and other details of hotel.
* It provides the security to customers so that only authenticated persons can aces the data.

### **Assumptions**:

* Hotel was dealing with a lot of data.
* High market demand.
* According to demand was prone to error.
* Complaints by customers regarding service.

#### Selected process model:

“Linear sequential model”

#### Reasons:

We use linear sequential model when well defined adoptions and enhancement to an existing system is to be made. Here the existing adoption is manual so we use linear sequential model to make it well defined and enhanced to existing system.

* Working**:**

This project involves high level communication between customers and stack holders in order to get requirements and other related activities. Now when a plan to be followed will be created which will describes the technical tasks to be conducted, risks, required resources, work schedules etc. Model is created to better under stands the requirements and design to achieve these activities. Now generate the code. Now complete version of software is represented to the customer to evaluate and they give feed backs based on evaluation.

### Example 2:

* + **Stated Problem:**

Biomechanics students need software to calculate muscle contraction forces in model describing musculoskeletal system biomechanics. You have to present linear model techniques that solve the problem with sequential access and there is no need of requirement changes during duration of software developing.

#### Stated facts:

* Create software for biomechanics system.
* Requirements cannot be changed.
* Intense competition.

#### Assumptions:

* As it is a new idea so there is a high rate of failure.
* There is no other software like this.
* Other companies may also working on this software.

#### Selected process model:

“Linear sequential model”

#### Reasons:

We use linear sequential model as already stated that we have to work in sequence. As already mentioned that there is no need of any change in requirements during the software developing so we use linear sequential model.

* Working**:**

In this example we have to produce a technique that solves two objective problems with sequential model.

We present a linear model techniques that is first communicate with the customers then plan the requirements. Remember that it is a linear sequential model so no requirements are changed when software has been designed. Now design the model of software. After this generate the code of the software and when software is completed give it to customer to evaluate and they give feed backs on the basis of evaluation.

**Question 2**

**Provide two examples of software projects that would be amenable to the prototyping model. Be specific.**

* **Example 1**
* **Stated Problem:**

A customer has asked a Software Engineer to make a small calculator for kids of 2 or 3 years . After 1 week he told him that the calculator should be like toys in which only addition and subtraction should be performed . After some days he told him that only 10 numbers can be entered in the calculator. When the Programmer has made that calculator ,the customer didn’t liked that and asked him to change calculator appearance. After some days he told him that there must be a sound system in which the childrens can listen and watch the answer of sum or subtraction .Finally the calculator toy Software s developed.

* **Stated Facts:**
  + Customer looks the calculator being developing with time to time.
  + Customer tells different things to adjust in calculator.
  + Customer is indetermined in some changes being done.
  + Developer used to collect the requirements by the customer.
* **Assumptions:**
* When Programmer completes each task he/she show that to the customer and do necessary changes told by the customer.
* Use Prototype Model as “*the first system*”
* No time factor.
* **Selected Process Model:**

Prototype Model

* **Reasons**
  + As the system needs to have changes according to the customer so it will be feasible for us to make Prototype Model.
  + No Time constraint is there, Prototype approach will suit us to complete the given project without hurrying.
  + Prototyping offers the best approach for making this project

* **Project Working**

The Programmer first asks the required requirements from the customer for making calculator . After that the Programmer makes a rough sketch of calculator. Then the Programmer starts making design of calculator. After that the start implementing Prototype model. Then he checks the prototype if it has any type of bugs and remove unnecessary bugs and thing and shoes the project to the customer. If customer agree’s , the Programmer evaluates the calculator. Else the Programmer again makes a sketch and start implementing Prototype model. Again he checks the prototype and shoes the project to the customer . The customer evaluates it and improvements are made. This continues in an iterative fashion until a satisfactory product is achieved.Finally the calculator is made and programmer gave that to the customer

* **Example 2**
* **Stated Problem:**

A boutique holder wants to make a webpage for publishment of her boutique. She has asked a Software house to make a webpage in which there are many different pages along with home page , each having different titles .With time she also told changes to make in webpage.

* **Stated Facts:**
* The boutique holder has defined some general objectives.
* With time she also told changes to make in webpage
* She puts stress on developer when she views the correct design.
* **Assumptions:**
* Use Prototype Model as “*the first system*”
* The WebPage is made on HTML.
* **Selected Process Model:**

Prototype Model

* **Reasons**
  + As the webpage needs to have changes according to the customer so it will be feasible for us to make Prototype Model.
  + No Time constraint is there, Prototype approach will suit us to complete the given project without hurrying.
  + Prototyping offers the best approach for making this project
  + Prototype Model is Used as “*the first system*” or “Throw Away”.

* **Project Working**

The designer first asks the required requirements from the boutique holder for making webpage. After that the Programmer makes a rough sketch about what should the webpage contain . Then the Programmer starts making webpage . After that the start implementing Prototype model. Then he checks the prototype if it has any type of bugs and remove unnecessary bugs and thing and shows the webpage to the boutique holder . If boutique holder agree’s , the designer evaluates the webpage. Else the boutique holder again makes a sketch and start implementing Prototype model. Again he checks the prototype and shows the webpage to the boutique holder . The boutique holder evaluates it and improvements are made. This continues in an iterative fashion until a satisfactory product is achieved. Finally the webpage is made and designer register that and gave the link to the boutique holder .

**Question 3**

**Provide two examples of software projects that would be amenable to the RAD model. Be specific.**

* **Example 1:**
* **Stated Problem:**

A customer wants home security function within 2 to 3 months. Home security model should contain different separate functions, like movement sensors, home surveillance function, management function, communication management function and others. What software model will you choose and why? Explain in detail.

* **Stated facts:**
* Create a home security function.
* System is decomposed in different components.
* Time constraint is there.
* Components are automated to some extent.
* Customer wants that all the functions should work independently as well as united.
* **Assumptions:**
* As system is decomposed in different functions so parallel development can occur.
* As it is divided into different functions so more human resources are required.
* The functions or components will work independently but at the end they will be combined and work as a unit.
* Functions will be restudied and analyzed ,so that these can be under one system independently.
* **Selected process model:**

RAD model.

* **Reasons:**
* As the system is already divided into different parts so it’s easy to use RAD model.
* RAD approach will be good as we have sufficient human resources.
* Time limit is there, RAD approach will suit us to complete the project with in specified time.
* It also saves effort, time and finance.
* As RAD is component based, it means some work is done on different components so RAD understands it well.
* **Project working:**

At the start of the project, make teams after that every team will be assigned a task or function than all teams will start their work.

A team that is assigned movement sensor will work on windows, door, motion sensor, fire, smoke and water level in basement and work on security setting via internet.

Second team will work on connecting video cameras, camera monitoring zone, display camera on pc, access camera view via internet.

Third will control lighting, control appliances, control video, audio equipment throughout house, set answering machine.

Fourth team will manage answering machine, list of callers via caller ID, message texts via voice recognition, manage emails, voice read of emails via phone access,link to PDA .

And all should be applicable via password protection.

* **Example 2:**
* **Stated Problem:**

A school management wants biometric attendance software for the proper attendance of the students. So that only the right student is signing and not for his or her friend, school wants this software within 1 to 2 months. They want the software in different functions so that they can also use independently, like a function which includes student data, one includes the fingerprints, one includes the result in which 5% reward marks will be added, one check the students attendance %. Student having 85% or more attendances will be rewarded with extra 5% marks. What software model would you choose and why? Explain in detail.

* **Stated facts:**
* Create a biometric attendance system.
* System is decomposed in different components.
* Every component is automated.
* Time constraint is there.
* Risk will be low.
* User wants that all the components can also run independently.
* **Assumptions:**
* Team resources are sufficient available through which parallel development can occur.
* Some components are automated to some extent ,so historical data will help us to understand .
* Risk occurrence will be reduced.
* **Selected process model:**

RAD model.

* **Reasons :**
* As the system is already divided into different parts so it’s easy to use RAD model.
* RAD approach will be good as we have sufficient human resources.
* Time limit is there, RAD approach will suit us to complete the project with in specified time.
* It also saves effort and time.
* As RAD is component based, it means some work is done on different components so RAD understands it well.
* The users wants that all the functions work separately as well and RAD work in different teams so, it’s better to use RAD.
* **Project working**:

At the start of project, one team will immediately develop the system level interface. Work will be divided into teams, all the teams start the work assigned to them.

First team will collect student’s data and information of the students with their complete detail.

Second team starts collecting the fingerprints of the students.

Third team will work on the function that will check the attendance of the students and also add 5% reward or extra marks to the student’s result having 85% or more attendance.

Fourth team will work on combining all the functions.

**Question 4**

**Provide two examples of software projects that would be amenable to the spiral model. Be specific.**

* **Example 1**
* **Stated Problem:**

A company has upload a task on website to update a word processing software with advanced word editing features (e.g colored word, different layouts, font faces). There is intense market competition & tight deadlines has been announced. What software process model(s) would you choose and why? Explain in detail.

* **Stated facts:**
* Update a word processing SW.
* Add advanced features in it.
* Tight deadlines.
* High market demand.
* **Assumptions:**
* Documents of basic featured software are available.
* Other organizations are also working on same project.
* Requirements all well-defined, and cannot be changed further.
* **Selected Process Model:**

Incremental Process Model.

* **Reasons:**
* Basic purpose is to capture market because high competition is there.
* Less risk factor because updating an already existing SW.
* **Project Working :**

At the start of project, a team will make changes in documents according to requirements and also changes the design according to new requirements. Then developers will start coding according to design and test that code for not having bugs. After satisfaction they will release the new working product. If more features are to be added then they will make a new release after satisfaction they will release different versions until all the feature have not been added.

* **Example 2:**
* **Stated Problem:**

Facebook users want unlike button for the posts so, Facebook decided to introduce unlike feature. There is intense market demand and tight deadline has been announced. What software process model would you choose and why? Explain in detail.

* **Stated facts:**
* Update Facebook.
* Add unlike feature in it.
* Tight deadlines.
* High market demand.
* **Assumptions:**
* Requirements are well defined.
* Already versions some features are released.
* **Selected process model:**

Incremental process model.

* **Reasons:**
* Basic purpose is to capture the market.
* Less risk because updating existing software.
* **Project working:**
* At the start of the project, work on the unlike feature and
* Then test that and release it after full satisfaction.
* The company will release more versions if the market demands.

**Question 5**

**Provide two examples of software projects that would be amenable to the incremental model. Be specific.**

* **Example 1**
* **Stated Problem:**

Market is demanding a music player for only Qmobiles. And competition is intense, requirements can also be changes w.r.t to change in processing of Qmobiles. What software process model(s) would you choose and why? Explain in detail.

* **Stated facts:**
* Create a music player for only Qmobiles.
* Intense market competition.
* Requirements can be changed.
* **Assumptions:**
* There is no software for playing music on qmobile.
* There is high risk of failure because its a new idea.
* Other organizations are also woking on this project.
* **Selected Process Model:**

Spiral Process Model.

* **Reasons**:
* When there is high risk of failure then we can use spiral model there.
* As market demand is high so by just giving a paper model market can be captured.
* Requirements can be changed.
* **Project Working :**

At the start of the project, a team will understand the problem and make design the software and release that design in market for capturing its intention.

In next iteration team will work on coding of the software and make changes in design if required. Then team will put operations behind the design of software and after testing it they will release it.

Then if market require more changes or add new features then that requirements will fulfill. And these quick releases will be given until the desired product is not obtained.

* **Example 2**
* **Stated Problem:**

Create a software use to convert decimal numbers to binary. There is no such software in market and competition is intense. What software process model(s) would you choose and why? Explain in detail.

* **Stated facts:**
* Create a SW for Decimal to Binary conversion.
* Intense market competition.
* No such SW exist ( new SW).
* **Assumptions:**
* High risk factor.
* Less time factor.
* **Selected Process Model:**

Spiral Process Model.

* **Reasons:**
* There is no such SW in the market so risk factor is high and where risk factor is high this model is used there.
* When there is high market demand this process model is used.
* Changes can be happen in requirements.
* **Project Working :**

At the start of project , a team will make its related documents that will tell about software’s feature. Then team will design an interface a paper model and organization will release it in market to capture its intention. Then team will work on coding, operations , testing of software and fix the bugs if present. And release the working product in market. If it needed changes and enhancement of features then team will work on it and fulfill the requirements and again release a product in market and organization will release its objects until all the requirements are not fulfill.