# LAB 1
# Software Engineering- IT 314

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## Aim: Choosing Software Process Models

### Q1: A SIMPLE DATA PROCESSING PROJECT.

Ans: For this project we can use the **Waterfall Model** as this is a small project and all the requirements are briefly given. The problem is well understood and no major changes can be expected by the end.

### Q2. A DATA ENTRY SYSTEM FOR OFFICE STAFF WHO HAVE NEVER USED COMPUTERS BEFORE. THE USER INTERFACE AND USER-FRIENDLINESS ARE EXTREMELY IMPORTANT.

Ans: For this project we can use the **Spiral Model**. This is because the requirements are quite complex and unclear to execute. User friendliness need lot of realism and flexibility. We would need to review the product at every phase and may need to make appropriate changes.

### Q3. A SPREADSHEET SYSTEM THAT HAS SOME BASIC FEATURES AND MANY OTHER DESIRABLE FEATURES THAT USE THESE BASIC FEATURES.

Ans: We would need to implement **Incremental Model** for the above scenario. This will involve developing incremental versions on top of the existing software. Exposing it to user feedback and refining it to the ultimate need.

## Q4. A WEB-BASED SYSTEM FOR A NEW BUSINESS WHERE REQUIREMENTS ARE CHANGING FAST AND WHERE AN IN-HOUSE DEVELOPMENT TEAM IS AVAILABLE FOR ALL ASPECTS OF THE PROJECT.

Ans: For the above requirements we need the **Agile Model**. This model is suitable for projects with rapid changing requirements. This will allow flexibility and assistance for the in-house development team. This also follows iterative approach so any problems can be tackled really fast.

## Q5. A WEB-SITE FOR AN ON-LINE STORE WHICH HAS A LONG LIST OF DESIRED FEATURES IT WANTS TO ADD, AND IT WANTS A NEW RELEASE WITH NEW FEATURES TO BE DONE VERY FREQUENTLY.

Ans: This requirement could be fulfilled by the **Scrum – Agile model**. This is adequate for rapidly changing features and requirements. Scrum allows for frequent sprints to continuously update and improve the product. Also, this software would be easy to maintain and upgrade.

## Q6. A SYSTEM TO CONTROL ANTI-LOCK BRAKING IN A CAR.

Ans: This can be achieved successfully by the **Spiral Model**. This is because this is a safety feature and would need lot of risk management and testing. This model is suitable for high-risk projects. Testing will be done at each phase of development. This will emphasize the verification and validation of the system.

## Q7. A VIRTUAL REALITY SYSTEM TO SUPPORT SOFTWARE MAINTENANCE.

Ans: This is a complex task and so will need **Spiral Model**. This is combining the elements of both designing and prototyping in stage. Each stage will be followed by evolution and planning for next helpful feature.

## Q8. A UNIVERSITY ACCOUNTING SYSTEM THAT REPLACES AN EXISTING SYSTEM.

Ans: This task could be achieved by **Iterative Model**. This will involve repeating the waterfall model in small increments. The requirements are somewhat defined but could have small changes in the later stage.

## Q9. AN INTERACTIVE SYSTEM THAT ALLOWS RAILWAY PASSENGER TO FIND TRAIN TIMES FROM TERMINALS INSTALLED IN STATIONS.

Ans: This problem can be tackled by the **Prototyping Model.** This will be helpful as detailed information about the interaction of the product with the use case is not defined. First a prototype can be installed in stations, and by learning from the feedback, changes could be developed in later versions.

## Q10. COMPANY HAS ASKED YOU TO DEVELOP SOFTWARE FOR MISSILE GUIDANCE SYSTEM THAT CAN IDENTIFY A TARGET ACCURATELY.

Ans: This is a high risk involved project so we will use the **Spiral Model**. Safety and robustness are critical for the project therefore this model is needed. This enables close evaluation of the prototype and planning the next phase of operation.

## Q.11 WHEN EMERGENCY CHANGES HAVE TO BE MADE TO SYSTEMS, THE SYSTEM SOFTWARE MAY HAVE TO BE MODIFIED BEFORE CHANGES TO THE REQUIREMENTS HAVE BEEN APPROVED. CHOOSE A PROCESS MODEL FOR MAKING THESE MODIFICATIONS THAT ENSURES THAT THE REQUIREMENTS DOCUMENTS AND THE SYSTEM IMPLEMENTATION DO NOT BECOME INCONSISTENT.

Ans: This kind of requirements could be fulfilled by **Agile Model**. This is suitable for rapidly changing requirements and fast repairs. It enables flexibility and regular updates on the project.

## Q12. SOFTWARE FOR ECG MACHINE.

Ans. Again this is a safety critical project so we will need **Spiral Model**. This will help with frequent variations and corrections in the project. And will take care of the risk factor associated with the project.

## Q13. A SMALL SCALE WELL UNDERSTOOD PROJECT (NO CHANGES IN REQUIREMENT WILL BE THERE ONCE DECIDED).

Ans: We can work with **Waterfall Model** for this project. This is because the requirements are well specified and project is well understood.

# End