- **IT314: Software Engineering**
- **Lab Assignment - 1**
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▪ Choosing Software Process Models :

(a) A simple data processing project.

→ Waterfall: Because our needs are clear and the Waterfall approach is appropriate for small projects, we can utilize it to create a straightforward data processing project.

(b) A data entry system for office staff who have never used computers before. The user interface and user-friendliness are extremely important.

→ Prototyping: As we have to make our project user-friendly, client interaction (feedback) is very much important. So, we can use the Prototyping model or the Evolutionary model.

(c) A spreadsheet system that has some basic features and many other desirable features that use these basic features.

→ Incremental: We can use the incremental model since we need numerous features that can be implemented utilizing fundamental characteristics. We can implement the fundamental features first, and then add extra features that rely on them.

(d) 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.

→ Agile**:** As requirements are changing fast, and an in-house development team is available for all aspects of the project, we can definitely use the Agile model here.

(e) A Website for an online 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.

→ Agile: As we need frequent new releases of our website, we can certainly use the Agile model.

(f) A system to control anti-lock braking in a car.

→ Spiral model: It is for projects that involve high risks and critical safety considerations, such as a system to control anti-lock braking in a car.

(g) A virtual reality system to support software maintenance.

→ Evolutionary: Virtual reality systems require continuous improvement and adaptation to evolving maintenance needs, the Evolutionary model will be the best fit for this project.

(h) A university accounting system that replaces an existing system.

→ Waterfall: When replacing an existing system, the requirements are likely to be well-defined and stable, thus Waterfall.

(i) An interactive system that allows railway passenger to find train times from terminals installed in stations.

→ Incremental: As we need an interactive system, using the incremental the model will be a good idea as it accommodates regular feedback from stakeholders.

(j) Company has asked you to develop software for missile guidance system that can identify a target accurately.

→ Spiral: The Spiral model focuses on risk assessment, which is a crucial aspect of our project that must be taken into account.

(k) 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.

→ Agile: The agile methodology is well suited for situations like this when we must quickly adapt to changing requirements.

(l) Software for ECG machine.

→ Spiral: The Spiral approach was chosen because creating software for ECG equipment requires serious safety considerations and requires a very reliable system.

(m) A small scale well-understood project (no changes in requirement will be there once decided).

→ Waterfall: The Waterfall model would be suitable for a small-scale, well-understood project with predictable requirements. It takes a linear approach, and when the requirements are explicit, it may help in effectively controlling the development process.