

Assignment_1

Case Study 1 (Insulin Pump)

Product Type: Generic

Application Type: Embedded, Data Collection

Development Process Model: Water fall.

Reason: The system should be very accurate with large amount of analysis as the system deals with safety critical data

Case Study 2 (System for Mental Health Care)

Product Type: Customized.

Application Type: Interactive (web), Standalone (Desktop).

Development Process Model: Incremental.

Reason: The system can be easily divided into modules each produced and delivered once completed.

Case Study 3 (A Wilderness Weather Station)

Product Type: Customized.

Application Type: System of Systems, Embedded, Data Collection.

Development Process Model: Prototype.

Reason: The system can be easily divided into modules each delivered once completed and improved with each new version.

Assignment_2

Spiral Model (Risk-driven Model)

Category: Rapid Application Development

How it works:

It looks like a spiral with many loops, each loop represents a phase in software development process. The radius represents the cost of the project so far at any point.

Each phase is divided into four quadrants.

- 1- Objective setting
- 2- Risk assessment and reduction
- 3- Development and validation
- 4- Planning

Pros:

- 1- Risk Handling.
- 2- Good for large projects.
- 3- Flexibility in Requirements.
- 4- Customer Satisfaction.

Cons:

- 1- Complex.
- 2- Expensive.
- 3- Too much dependability on Risk Analysis.
- 4- Difficulty in time management.

V-Model (Verification and Validation Model)

Category: Plan Driven.

How it works:

Testing of the device is planned in parallel with a corresponding stage of development.

Phases of Verification (Design) phase of V-model:

- 1- Business requirement analysis.
- 2- System Design.
- 3- Architecture Design.
- 4- Module Design.
- 5- Coding Phase.

Phases of Validation (Testing) phase of V-model:

- 1- Unit Testing.
- 2- Integration Testing.
- 3- System Testing.
- 4- Acceptance Testing.

Pros:

- 1- Simple and easy to understand and use.
- 2- Testing Methods like planning, test designing happens well before coding.
- 3- Easy to manage thanks to each phase having specific deliverables and a clear review process.

Cons:

- 1- High risk and uncertainty.
- 2- It is not a good for complex and object-oriented projects.
- 3- This model does not support iteration of phases.

Assignment_3

CRM (Customer Relationship Management)

Definition:

A software that helps keep track of interaction information between a company and its customers.

Its goal is to improve the business by growing the connection between the business and its potential customers.

It is used to track the entire customer lifecycle, spanning marketing, sales, digital commerce and customer service.

It could be implemented inside an ERP system.

ERP (Enterprise Resource Planning)

Definition:

A software that companies use to manage important departments of their businesses.

It can integrate departments like planning, purchasing inventory, sales, marketing, finance, and human resources, etc...