# **ASSIGNEMENT-3**

# Waterfall Model:

Advantages:

Sequential and easy to understand, well-suited for projects with clear and stable requirements, documentation-heavy approach ensures traceability and compliance.

Disadvantages:

Limited flexibility for changes, high risk of late feedback, difficult to accommodate evolving requirements.

Applicability:

Best for projects with fixed, well-defined requirements and where changes are unlikely to occur.

# Agile Methodology:

Advantages:

Flexibility to adapt to changing requirements, promotes collaboration and customer involvement throughout the development process, allows for incremental delivery.

Disadvantages:

Requires active customer involvement, may lack documentation which can pose challenges for compliance, can be challenging for large and complex projects.

Applicability:

Ideal for projects where requirements are expected to evolve, customer feedback is crucial, and rapid delivery of working software is required.

# Spiral Model:

Advantages:

Iterative approach with emphasis on risk management, allows for early identification and mitigation of risks, accommodates changes throughout the development lifecycle.

Disadvantages:

Complex and resource-intensive, requires thorough risk analysis and management expertise, can be difficult to manage for small projects.

Applicability:

Suitable for large and complex projects with high risks, where requirements are not well-understood or may change over time.

# V-Model:

Advantages:

Emphasizes testing throughout the development lifecycle, ensures that each phase has corresponding testing activities, promotes early defect detection and correction.

Disadvantages:

Sequential nature can make it inflexible to changes, documentation-heavy approach may slow down development, may not be suitable for projects with evolving requirements.

Applicability:

Suitable for projects where testing and quality assurance are critical, such as safety-critical systems or projects with strict regulatory requirements.

## ***Conclusion:***

Each model has its strengths and weaknesses, and the choice depends on factors such as project size, complexity, requirements stability, and customer involvement. In practice, hybrid approaches that combine elements of different models are often used to better fit the specific needs of the project.