***Agile***

* Agile methods break tasks into small increments with minimal planning, and do not directly involve long-term planning.
* Iterations are short time frames ("time boxes") that typically last from one to four weeks.
* Each iteration involves a team working through a full software development cycle including planning, requirements analysis, design, coding, unit testing, and acceptance testing when a working product is demonstrated to stakeholders.
* Team composition in an agile project is usually cross-functional and self-organizing.
* Team members normally take responsibility for tasks that deliver the functionality an iteration requires.
* They decide individually how to meet an iteration's requirements..

Most agile implementations use a routine and formal daily face-to-face communication among team members.

**Principles of agile methods:-**

* Customer satisfaction by rapid, continuous delivery of useful software
* Working software is delivered frequently (weeks rather than months)
* Working software is the principal measure of progress
* Even late changes in requirements are welcomed
* Close, daily cooperation between business people and developers
* Face-to-face conversation is the best form of communication (co-location)
* Projects are built around motivated individuals, who should be trusted
* Continuous attention to technical excellence and good design
* Simplicity
* Self-organizing teams

**Characteristics:-**

* **Scrum** is a “process skeleton” which contains sets of practices and predefined roles. The main roles in Scrum are:
* The “**Scrum Master**”, who maintains the processes (typically in lieu of a project manager)
* The “**Product Owner**”, who represents the stakeholders and the business
* The “**Team**”, a cross-functional group of about 7 people who do the actual analysis, design, implementation, testing, etc.

**Scrum Concepts:-**

* Products is designed and built iteratively and incrementally using the product development life cycle in 2 to 4 weeks duration.
* At the end of iterations, product is delivered based upon the business value of the features as prioritized by the customers.

Customer review the product and provides feedback to the team.

**Terminologies used in Agile:-**

* + Stories
  + Iterations
  + Complexity points
  + Iteration Velocity
  + Product Backlog / Iteration Backlog
  + Scrum / Daily Stand Up Meeting
  + Iteration Planning Meeting (IPM)
  + Iteration Review Meeting
    - Showcase and Retrospective Meeting
    - Burn Up and Burn-Down Chart

**Daily Stand Up Meeting** :-

What have you done since the last daily Scrum meeting?

What will you do between now and the next daily Scrum meeting?

What impedes you from performing your work as effectively as possible?

**Extreme Programming (XP):-**

* One of the most well-known agile development life cycle models. The methodology claims to be more human friendly than traditional development methods. Some characteristics of XP are:
* It promotes the generation of business stories to define the functionality.
* It demands an on-site customer for continual feedback and to define and carry out functional acceptance testing.
* It promotes pair programming and shared code ownership amongst the developers.
* It states that component test scripts shall be written before the code is

written and that those tests should be automated.

**Problems with agile methods:-**

* It can be difficult to keep the interest of Customers who are involved in the process.
* Team members may be unsuited to the intense involvement that characterizes agile methods.
* Prioritizing changes can be difficult where there are multiple stakeholders.
* Maintaining simplicity requires extra work.
* Requirement will not be freeze. Which causes more rework.