

## Extreme Programming

Extreme programming (XP) is one of the most important software development frameworks of Agile models. It is used to improve software quality and responsiveness to customer requirements.

### Principles of Extreme programming:

**Coding:** The concept of coding which is used in the XP model is slightly different from traditional coding. Here, the coding activity includes drawing diagrams (modeling) that will be transformed into code, scripting a web-based system, and choosing among several alternative solutions.

**Testing:** The XP model gives high importance to testing and considers it to be the primary factor in developing fault-free software.

**Listening:** The developers need to carefully listen to the customers if they have to develop good quality software. Sometimes programmers may not have the depth knowledge of the system to be developed. So, the programmers should understand properly the functionality of the system and they have to listen to the customers.

**Designing:** Without a proper design, a system implementation becomes too complex, and very difficult to understand the solution, thus making maintenance expensive. A good design results elimination of complex dependencies within a system. So, effective use of suitable design is emphasized.

**Feedback:** One of the most important aspects of the XP model is to gain feedback to understand the exact customer needs. Frequent contact with the customer makes the development effective.

**Simplicity:** The main principle of the XP model is to develop a simple system that will work efficiently in the present time, rather than trying to build something that would take time and may never be used. It focuses on some specific features that are immediately needed, rather than engaging time and effort on speculations of future requirements.

**Pair Programming:** XP encourages pair programming where two developers work together at the same workstation. This approach helps in knowledge sharing, reduces errors, and improves code quality.

**Continuous Integration:** In XP, developers integrate their code into a shared repository several times a day. This helps to detect and resolve integration issues early on in the development process.

**Refactoring:** XP encourages refactoring, which is the process of restructuring existing code to make it more efficient and maintainable. Refactoring helps to keep the codebase clean, organized, and easy to understand.

**Collective Code Ownership:** In XP, there is no individual ownership of code. Instead, the entire team is responsible for the codebase. This approach ensures that all team members have a sense of ownership and responsibility towards the code.

**Planning Game:** XP follows a planning game, where the customer and the development team collaborate to prioritize and plan development tasks. This approach helps to ensure that the team is working on the most important features and delivers value to the customer.

**On-site Customer:** XP requires an on-site customer who works closely with the development team throughout the project. This approach helps to ensure that the customer's needs are understood and met, and also facilitates communication and feedback.