NATIONAL INSTITUTE OF TECHNOLOGY SILCHAR

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1. What makes software design different from coding? On what criteria do we evaluate the quality of a software design?

➔ Software Design is more of an analysis and planning than an execution like coding. Coding is detailed implementation while software design deals with the higher level of structural design to the functional interface level. Software design is not necessarily limited to codes and coding practices; it can include learning to work as a team, access customer requirements, programming methodology, technical specifications, iterations, customer walkthroughs, hiring and firing, better management and communication and various other practical applications that makes a programmer's work useful, successful and stable. Coding, on the other hand, is limited to programming the functions and executing the prime idea discussed in the design part.

There are lots of criteria on which the quality of a software design is analysed, of which, the four most fundamental criteria are:

i. **Code Quality:** It deals with how big and complex the program is, how many bugs per KLOC, number of lines and functions it contains, if the code meets the coding standards, as well as various other features like maintainability, readability, clarity, efficiency and documentation.

ii. **Performance:** This point deals with resource allocation by the application, scalability, customer satisfaction and response time. Performance also involves the purpose fulfilment of the product and its performance in overall, i.e., if the product performs the way it is designed to.

iii. **Security:** It measures the inherent safety of a product along with ensuring that the product does not undergo any unauthorised changes on the client side.

iv. **Usability:** It is one of the most important of criteria as it ensures that the program is practicable and user-friendly. It measures if the product meets the feature requests and gives the best of performance for the customer satisfaction.

In addition to above mentioned points, there are lots of other criteria to evaluate the quality of a software design like agility, waterfall methodology, efficiency, extendibility, user acceptability, regression and penetration, load performance and more; but these factors, in one way or the other, fall under the pre-mentioned criteria.