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Course : Software engineering

1) What is software engineering?

Software engineering is the process of analyzing user needs and designing, constructing, and testing end user applications that will satisfy these needs through the use of software programming languages. It is the application of engineering principles to software development. In contrast to simple programming, software engineering is used for larger and more complex software systems, which are used as critical systems for businesses and organizations.

2) Why do we need to engineer in software?

We engineer software with the objective of making tedious tasks easier, getting things done faster and done efficiently. Consider how people used to communicate with each other via snail mail prior to email software being invented. If you had to mail a document, you would get it typed, purchase envelope, postage, and then make a trip to the post office to mail it out. If all went well, your document would reach its destination in a few days, time taken depended on variables like distance to destination, international mail, weather conditions etc. now compare that with what you can accomplish today with email software. You can email the document to anyone in any corner of the world within a few minutes. So email software has helped make it very easy for us to communicate with each other, the communication speed has increased many fold, and it costs next to nothing. Email is one simple example of how software has transformed our lives. There are tons of other software solutions which have had similar impact. With software industry now turning its attention to artificial intelligence and machine learning,

3) What are the code ethics governing a software engineer?

a) PUBLIC – Software engineers shall act consistently with the public interest.

b) CLIENT AND EMPLOYER – Software engineers shall act in a manner that is in the best interests of their client and employer consistent with the public interest.

c) PRODUCT – Software engineers shall ensure that their products and related modifications meet the highest professional standards possible.

d) JUDGMENT – Software engineers shall maintain integrity and independence in their professional judgment.

e) MANAGEMENT – Software engineering managers and leaders shall subscribe to and promote an ethical approach to the management of software development and maintenance.

f) PROFESSION – Software engineers shall advance the integrity and reputation of the profession consistent with the public interest.

g) COLLEAGUES – Software engineers shall be fair to and supportive of their colleagues.

h) SELF – Software engineers shall participate in lifelong learning regarding the practice of their profession and shall promote an ethical approach to the practice of the profession.