Assignment - I

Software Engineering Management

1SEUIT154

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Question 1:-

Introduction:-

The agile methodology originated in the Software development industry, as a new way to manage. It all started in the spring of 2000, when a group of 17 Software development, including Martin, Fowler, Jim Highsmith, Jon Kern and Bob martin met in Oregon to discuss how they could speed up development times in order being having new Software to market faster.

In 2001, the manifesto for Agile Software Development was created and signed by representies from Extreme programming, scrum, DSDM, Adaptive Software development, Crystal, Feature-Driven Development.

These values represent a significant breakthrough in the history of Agile, but the group did'nt stop here. To give even more colour to their vision, they also laid out 12 principles that stand behind those value. Those principles includes

i) Satisfying customer through early and continous delivery

ii) welcoming changes at any point

The main Agile <u>mangeets</u> - <u>4 values</u> :-

i) Individual and Intermediate over process and tools.

ii) working software over comprehensive documentation.

iii) customer collaboration over content negotiation

iv) Responding to change over following a plan,

The dament concludes that "while there is value in the items on the right, we have the items on the left more".

History of Agile :-

1970 : Waterfall model was created and developing

1991 : SCRUM conceived.

1995 : SCRUM codified and put into use

2001 : Agile manifesto created.

The agile manifest - 12 priciple

① Our highest priority is to Satisfy the custom - er through early and continous delivery of valuable software.

② Welcome changing requirements, even late in development. Agile process harness change for the customer's competitive advantage.

③ Deliver working Software frequency from a couple of weeks to a couple of months, with a prefer to the Shorter time scale.

④ Business people and developers must work together daily throughout the project.

⑤ Build project around motivated individuals Given the the environment and support they need and trust them to get the job done

⑥ The most efficient and effective method of conveying information to and within.

⑦ Working software is the primary measure of progress

⑧ Agile process promote sustainable development, the sponsors, development and users should be able to maintain a constant pace indefinitely.

⑨ Continious attention, to technical excellence and good design enhances agility.

⑩ Simplicity the art of maximizing the amount of work not done is essential.

⑪ The best architecture, requirement and design emerge from self-organizing teams.

(12) At regular intervals, the team reflects on how he become more effective, than tues and adjusts its behaviour accordingly.

Unlike waterfall model. Agile emphasis iterative development or building software in pieces. Agile teams typically work in short cycles - which are called "sprints" in Scrum, today one of the most widly used forms of agile - that usually last two weeks each.

Agile transformation — The agile transformation definition is as an act of transforming an organization form or nature gradually to one that is able to embrace and thrive in a flexible collaborative, self organizing, fast changing environment.

Question (2) :-

(1) RAD - SDLC model :-

RAD - Rapid Application Development model is based on prototyping and iterative development with no specific planing involved. In RAD model, there is less attention paid to the planing and more priority is given to th development parts. Its target at developing a Software in a short span of time.

What is RAD :-

Rapid application development is a software development methodology that use minimal planning in favour of rapid prototyping. A prototyping is a working model that is functionally equivalent to a component of the product.

RAD projects follow iterative and incremental model and have small teams comprising of developers, domain experts, customer representatives and other IT resources working progressively on their component or prototype. The most important aspect for this model to be successful is to make sure that the prototypes developed are reusable.

Development phases of RAD :-

→ Business modeling
→ Data modeling
→ Process modeling
→ Application generation
→ Testing and turnover.

It focuses on input - output sources and destination of the information. It emphasis the delivering project in small pieces. The large project are divided into a series of smaller projects

Business Modeling :-

On basis of the flow of information and distribution between various business channels, the product is designed. In the basis of the flow of information and distribution between various business channels, the product is designed.

Data modeling :-

The information collected from business modeling is refined into a set of data object that are significant for the business.

Proces Modeling :-

The data object that is declared in the data modeling phase is transformed to

drive the information flows necessary to implement a business function.

Application generation :-

Automated tools are used for the construction of the software, to convert process and data models into prototypes.

Testing and Turnover :-

As prototype are individually tested during every iteration, the overall testing time is reduced in RAD.

Advantage and Disadvantage :-

Advantage :-

① Flexible and adaptive to changes

② It is useful when you have overall project risk.

③ It is flexible and flexible to changes.

④ It is easier to transfer deliverables of Scripts, high level abstraction and intermediate code are used.

⑤ Due to prototyping nature, there is a possibility of fewer defects.

Disadvantage :-

① Not all application is compatible with RAD

② when technical risk is high, it is not suitable.

(3.) Reduced features due to time boxing, where features are pushed to a later version to finish a release in short period.

(4.) Progress and Problems accustomed are hard to track as such there is no document to demonstrate what has been done.

(5.) Requires highly skilled designer and developers.

Difference between RAD and Traditional SDLC

(1) Stages are (RAD) not well defined

(2) The use of automated RAD tools and technique enables faster and easier prototypes which are then used to depend

③ Different Stages of application development can be reviewed and repeated as the approach is iterative.

④ Easier to accomodate changes

⑤ It involves minimal documentation

⑥ Separate small teams can be assigned to individual modules.

Traditional SDLC :-

① Structured methodology and well-defined stages

② Follows a predictive, inflexible and rigid approach for application development.

③ Prototyping is difficult and requires more time and effort.

④ Limited customer feedback

⑤ The use of powerful and efficient tools requires highly skilled professionals.