RAPID APPLICATION DEVELOPMENT (RAD)

ECC 811 – SOFTWARE ENGINEERING

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BACKGROUND TO RAPID APPLICATION DEVELOPMENT (RAD)

1. **The Rapid Application Development Model** was first proposed by IBM in 1980's. The critical feature of this model is the use of powerful development tools and techniques.

2. A software project can be implemented using this model if the project can be broken down into small modules wherein each module can be assigned independently to separate teams. These modules can finally be combined to form the final product.

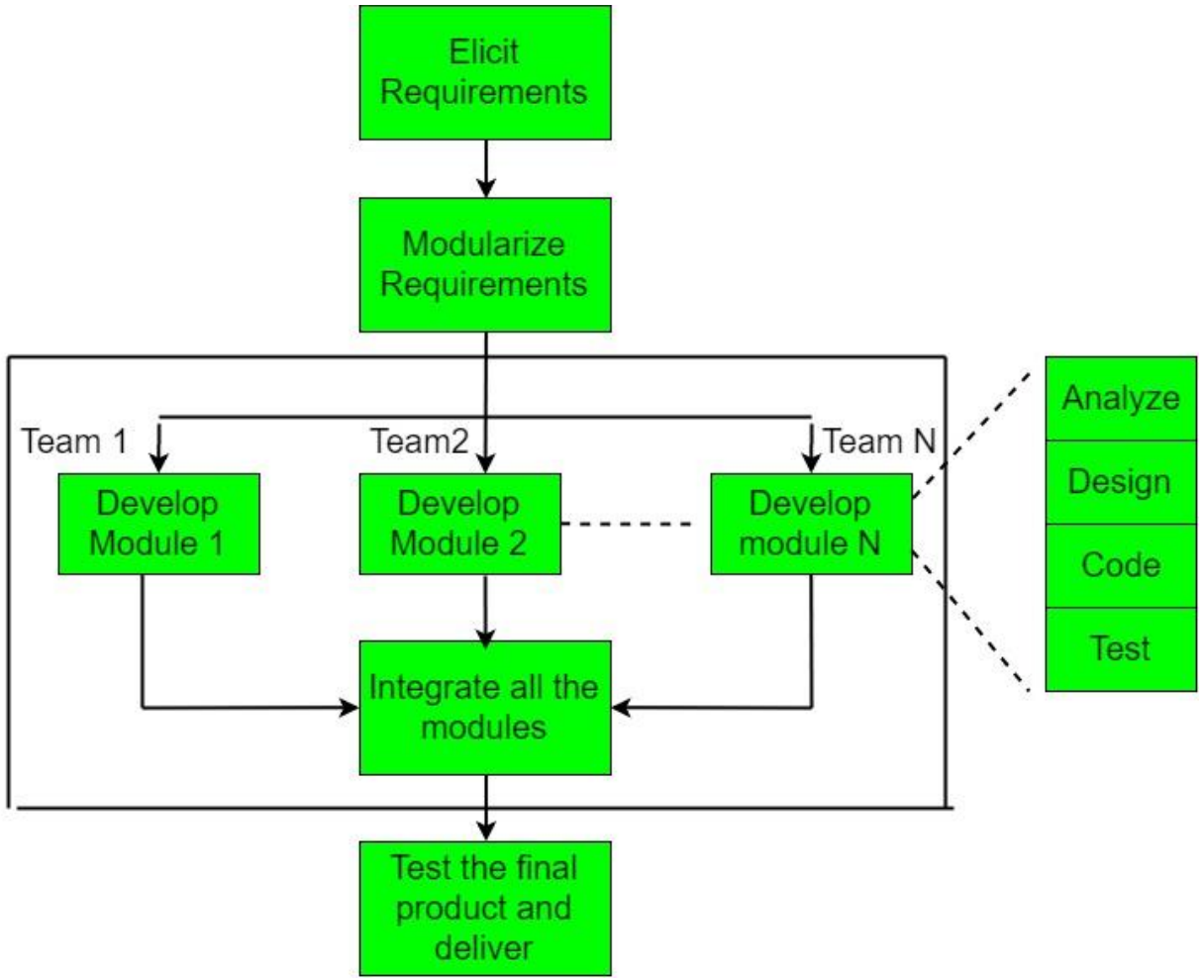
3. Development of each module involves the various basic steps as in waterfall model i.e analyzing, designing, coding and then testing, etc. as shown in the figure.
4. Another striking feature of this model is a short time span i.e the time frame for delivery(time-box) is generally 60-90 days.

RAD PHASES

RAD model consists of 4 basic phases:

1. **Requirements Planning:** Uses various techniques used in requirements elicitation like brainstorming, task analysis, form analysis, user scenarios, FAST (Facilitated Application Development Technique), etc. It also consists of the entire structured plan describing the critical data, methods to obtain it and then processing it to form final refined model.
2. **User Description:** Taking user feedback and building the prototype using developer tools. Includes re-examination and validation of the data collected in the first phase. The dataset attributes are also identified and elucidated in this phase.
3. **Construction:** Involves refinement and delivery of prototype. It includes the use of automated tools to transform process and data models into the final working product. All the required modifications and enhancements are too done in this phase.
4. **Cutover:** Involves testing of independent modules developed by separate teams followed by acceptance testing.

RAD PROCESS


Elicit Requirements
Modularize Requirements
Team 1
Team2
Team N
Develop Module 1
Develop Module 2
Develop module N
Integrate all the modules
Test the final product and deliver
Analyze
Design
Code
Test

ADVANTAGES

The advantages of RAD are:

1. Use of reusable components helps to reduce the cycle time of the project.
2. Feedback from the customer is available at initial stages.
3. Reduced costs as fewer developers are required.
4. Use of powerful development tools results in better quality products in comparatively shorter time spans.
5. The progress and development of the project can be measured through the various stages.
6. It is easier to accommodate changing requirements due to the short iteration time spans

DISADVANTAGES OF RAD

The disadvantages of RAD are:

1. The use of powerful and efficient tools requires highly skilled professionals.
2. The absence of reusable components can lead to failure of the project.
3. The team leader must work closely with the developers and customers to close the project in time.
4. The systems which cannot be modularized suitably cannot use this model.
5. Customer involvement is required throughout the life cycle.
6. It is not meant for small scale projects as for such cases, the cost of using automated tools and techniques may exceed the entire budget of the project.

APPLICATIONS OF RAD

RAD is suited to the following applications:

1. Systems with known requirements and requiring short development time.
2. Projects where requirements can be modularized and reusable components are also available for development.
3. When already existing system components can be used in developing a new system with minimum changes.
4. The budget permits the use of automated tools and techniques as required.
5. Teams consist of domain experts. This is because relevant knowledge and ability to use powerful techniques is a necessity.