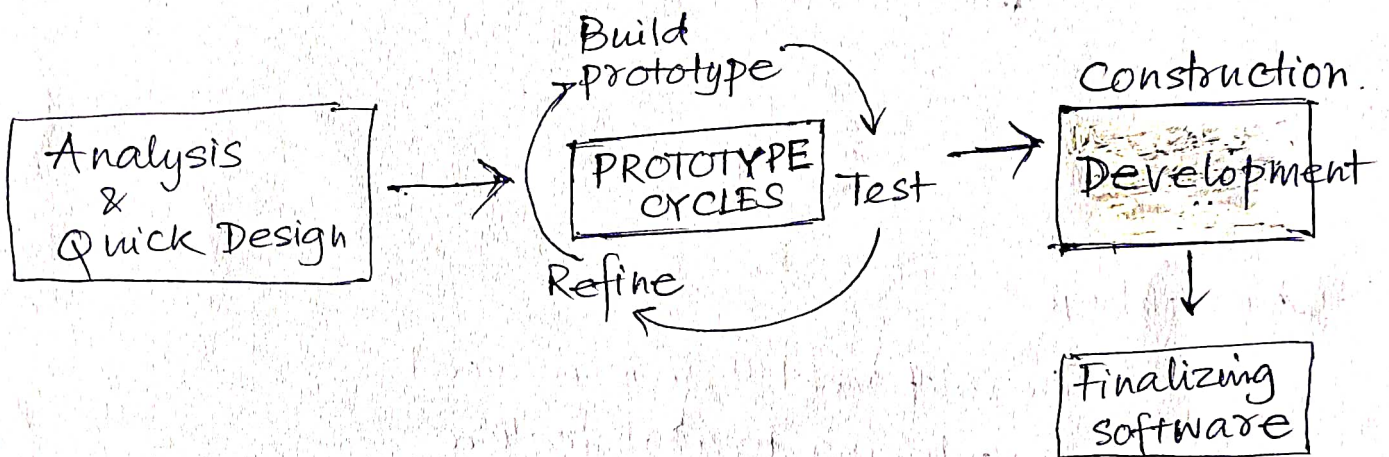Prototype + Iterative

RAD MODEL
(Rapid Application Development)

(upgraded)
Prototype is converted into
product after several iterations


```
                    Build
                  prototype
  ┌──────────┐          ┌─────────────┐              Construction
  │ Analysis │   →   (  │ PROTOTYPE   │ Test  →   ┌─────────────┐
  │    &     │          │  CYCLES     │           │ Development │
  │Quick Design│        └─────────────┘           └─────────────┘
  └──────────┘      Refine                               ↓
                                                   ┌──────────┐
                                                   │Finalizing│
                                                   │ software │
                                                   └──────────┘
```

Construction ——— Fleshing out the software from
Development   customer's feedback at Prototype cycles

Development requires less time &
feedback from the customer is likely to
be good.

Finalizing ———— Testing in intensive scale
software   Technical documentation
                  Final customization
                  System simulation.
                  Maintaince

Applications of RAD

Application needs to be developed quickly

Progress needs to made visible

User's feedback is readily available

User's expectation is not very clear at the start

Developing under tight schedule

~~Cost saving~~

Advantages

Development time is reduced

Prioritizing urgent feature

User centered approach & higher customer satisfaction ⟶ Reduces Risk

Deadline is ensured.

Cost-saving

Disadvantages

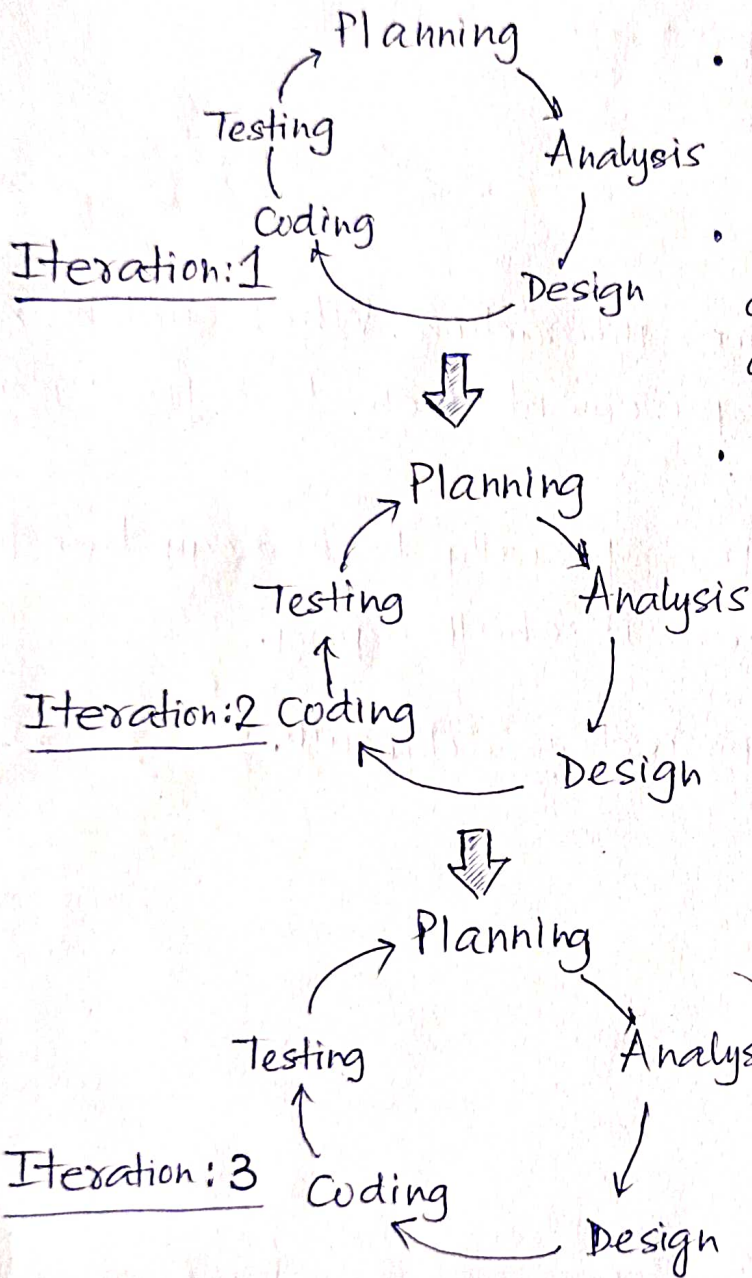Applicable for small project

Only skilled developers are needed ⟶ Expensive in terms of budget

Dependent on user's involvement

Joint Application Development (JAD)

AGILE Model

incremental & iterative model
combination

Iteration:1
Planning → Analysis → Design → Coding → Testing → Planning
(cycle)

Iteration:2
Planning → Analysis → Design → Coding → Testing → Planning
(cycle)

Iteration:3
Planning → Analysis → Design → Coding → Testing → Planning
(cycle)

- Agile model breaks the product into several iterations

- Each iteration includes different phases like planning, analysis, design, coding, testing.

- Iterations in agile process are shorter in duration (2 weeks to 2 months)

- At the end of an iteration working product is shown to customer

- With every iterations features are incremented. At the last iteration, all features are implemented.

- Duration of iteration is fixed. Development team may have to reduce the functionality to deliver within the time.

Advantage

- Quick & continuous delivery
- Customer satisfaction
- Anytime change is acceptable
- Reduces development time & cost.

Disadvantage

- Dependent on customer interaction. When customer is not clear to the requirement, then development may go to wrong direction.
- Knowledge transfer, specially technology-transfer to new team members is challenging.
- Maintenance of project is difficult.

Difference between Agile model & Evolutionary model?

Deadline is strict for each iteration

Deadline is not so strict for each iteration.