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Subject: Software Engineering

Slot: B11 + DB1

Class No: 0034

Date: 5/8/21

- 1) Agile development is an Iterative and Incremental (Evolutionary) approach performed in an highly collaborative manner with just the right amount of ceremony to produce high quality software in a cost effective and timely manner which meets the changing needs of its stakeholders.

Here the whole project will be divided into segments called 'Sprints'. Each sprint has a fixed time to complete.

In this approach, workload, budget and all the other things are decided based on Sprints.

Here are some of the reasons why agile ~~sprint~~ is not the recommended for building software systems.

- 1) Employees need prior experience in agile development.
- 2) An overall plan, an agile leader and agile PM practice is a must without which it will not work.
- 3) Strict delivery management dictates the scope; functionality to be implemented and work should be finished before deadline.
- 4) An experienced team with good project manager is required.
- 5) Change of team or team member is quite challenging.
- 6) Final product is not very much clear at the start.

Besides all the above challenges, Agile development is widely used in today's world to attain good and desirable results.

3) Analysis Model.

Analysis Model acts as a link between system description and system design.

In Analysis Modelling, information, behaviour and function of the system is defined and translated into the architecture, components and interface level design through design modelling.

It models the data domain by :

- defining data objects.
- describing data attributes.
- establishing data relationship.

It comes along with Model function which:

- Indicate different states of the system
- Specify events that caused the system to change state.

One of its key function is to Partition the model.

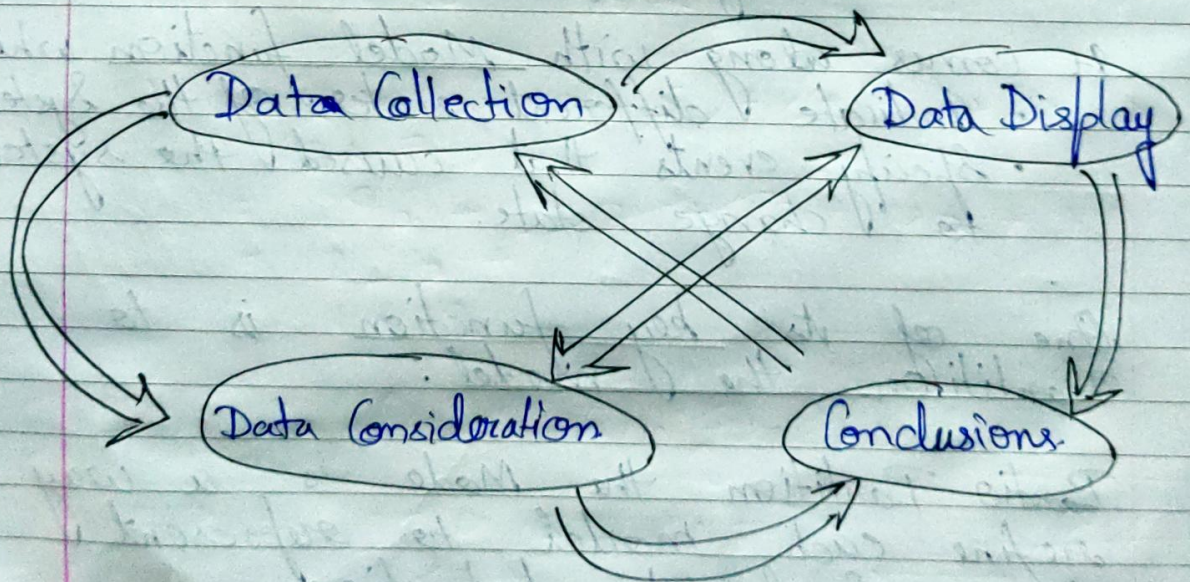
Partio- Partition the Mode is a way to refine each model to represent lower level of abstraction.

Some of its used features are:

- Refining data objects
- Creates a functionality hierarchy among data objects
- Represents behaviour and characteristics at different level level in detail.

Idea

The ~~objective~~ objective of Analysis Model is to begin by focusing on the problem statement without considering the Implementation details.



2)

Number of User Input = 24

Number of User Output = 46

Number of Inquiries = 8

Number of files = 4

Number of External Interfaces = 2

Technical documents = 265 pages.

User documents = 122 pages

Cost = \$25958/month.

Project duration = 12 months.

F_i : 4, 1, 0, 3, 3, 5, 4, 4, 3, 3, 2, 2, 4, 5

We can consider weighting factor as Average.

~~Step 1~~ Counting Function Point (FP)

Step 1:

$$F = 14 * \text{Scale}$$

Scale varies from 0 to 5. In our case weighting factor is average so scale = 3.

$$F = 14 * 3 = 42$$

Step 2: Calculate Complexity Adjustment Factor (CAF)

$$\begin{aligned} \text{CAF} &= 0.65 + (0.01 * F) \\ &= 0.65 + (0.01 * 42) \\ &= 0.65 + 0.42 = 0.07 \end{aligned}$$

Step 3: Calculate Unadjusted Function Point (UFP)

TABLE

Function Units	Low	Avg	High.
EI	4	4	6
EO	4	5	7
EQ	3	4	6
BILF	7	10	15
EIF	5	7	10

Here we'll multiply each individual function unit with corresponding value in the table.

$$\begin{aligned}
 UFP &= (24 * 4) + (46 * 5) + (8 * 4) + (4 * 10) + (2 * 7) \\
 &= 96 + 230 + 32 + 40 + 14 \\
 &= 1226 + 86 \\
 &= 1312
 \end{aligned}$$

Step 4: Calculate Function Point.

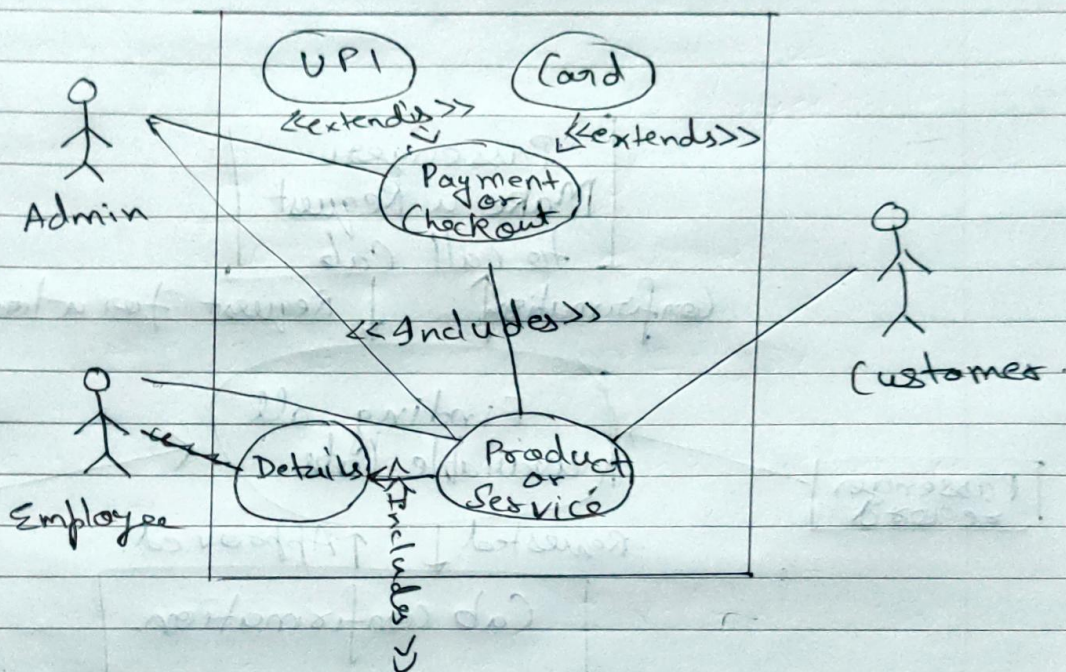
$$\begin{aligned}
 FP &= UFP * CAF \\
 &= 1312 * 1.07 \\
 &= 1403.84
 \end{aligned}$$

Rough

$$\begin{array}{r}
 1312 \\
 \times 1.07 \\
 \hline
 9184 \\
 0000 \times \\
 1312 \times \\
 \hline
 140384
 \end{array}$$

4) Use-Case Diagrams (SALOON)

- a) Users: Shop owner / Admin, Employee, and Customer. (b) Include / Extends.



Explanation.

Admin has control over checkout / payment system and all the Products.

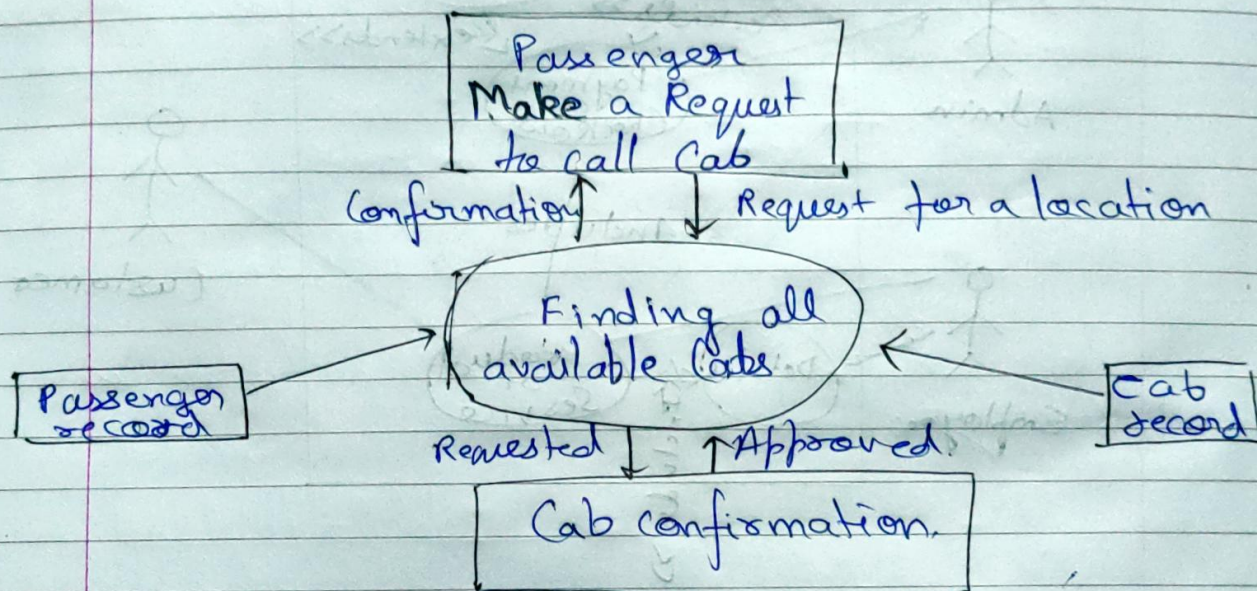
Employee deals with customer to showcase services with their details.

Services includes their details and payment method.

Payment method extends UPI and Card method.

5) Cab Booking Mobile Application.

LEVEL - 1: DFD



LEVEL - 0 : DFD.

