Roll No. 2113208

-: Experiment 4 :-

Aim :- Develop data flow diagram (DFD) for the project (Smart door, Lock door).

- What is DFD, Why we draw it ?

A data flow diagram is a visual depiction used to depict how data moves within a system. DFS's are drawn for several important purposes.

a) Enhance clarity :- DFD's provide a clear and concise representation of complex data flow patterns in a system.

b) In depth Analysis : They aid in comprehending system functionality, making it better / easier to pinpoint potential bottlenecks or inefficiencies.

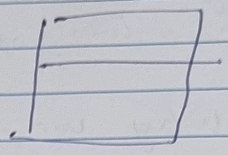
c) Effective Design :- DFD's play a pivotal role in designing new system or optimizing existing one by illuminating data interaction.

d) Facilitate communication : These diagram make it simpler for stakeholders such as users & developers to communicate & understand system intricacies.

e) Comprehensive Documentation : DFSs serves as comprehensive documentation for system requirements & captured ideas insights.

A+

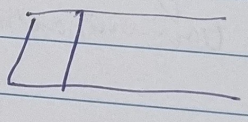
- Elements of DFA

1) Process 

→ Works or actions performs on data.
→ Label should be verb phrases
→ Receive o/p data & produces o/p.

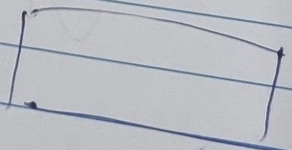
2) Data flow ⟶

→ is a part for data to move from one part to another.
→ arrows depicting movement of data.
→ Can represents flow between process & data store by 2 seperate arrows.

3) Data Store 

→ Uses in DFA to implement data that rystem stores.
→ Tables should be noun phrases.

4) Source / Sink / (External link)

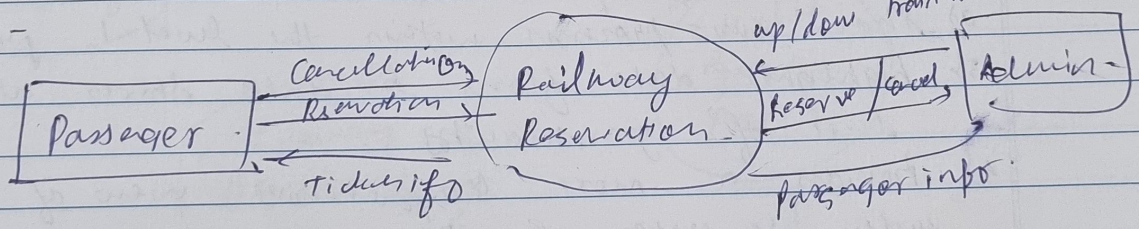


→ External entity that is origin or destination of data.
→ Labels should be noun phrases.
→ Source: Entity that supplies data to system.
→ Sink: Entity that receives data from system.

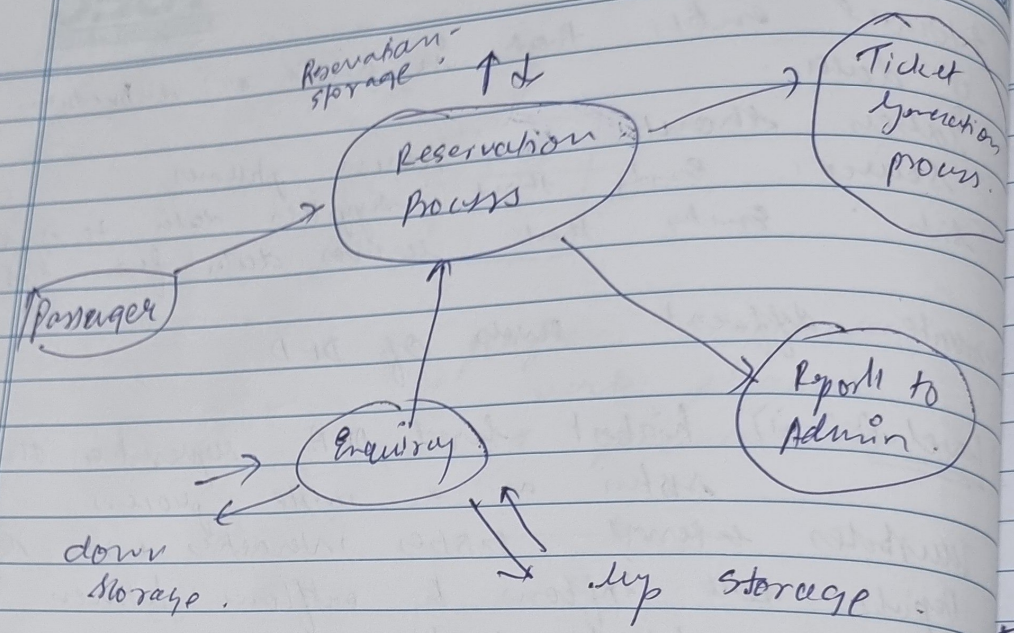
Describe different levels of DFD:

a) Level 0: i) Highest level DFA, represents the entire system as a single process.
2) Identifies external entities interacting with system.
3) Depicts data inflows & outflows between the system & external entities.
4) Offers a high level view of system boundaries & interactions.

ex:-



b) Level 1: 1) Shows the system major processes data flows & data stores at a high level of abstraction.
2) When context diag is expanded into DFA level-0, all the connections that flows into & out of process 0 needs to be retained.

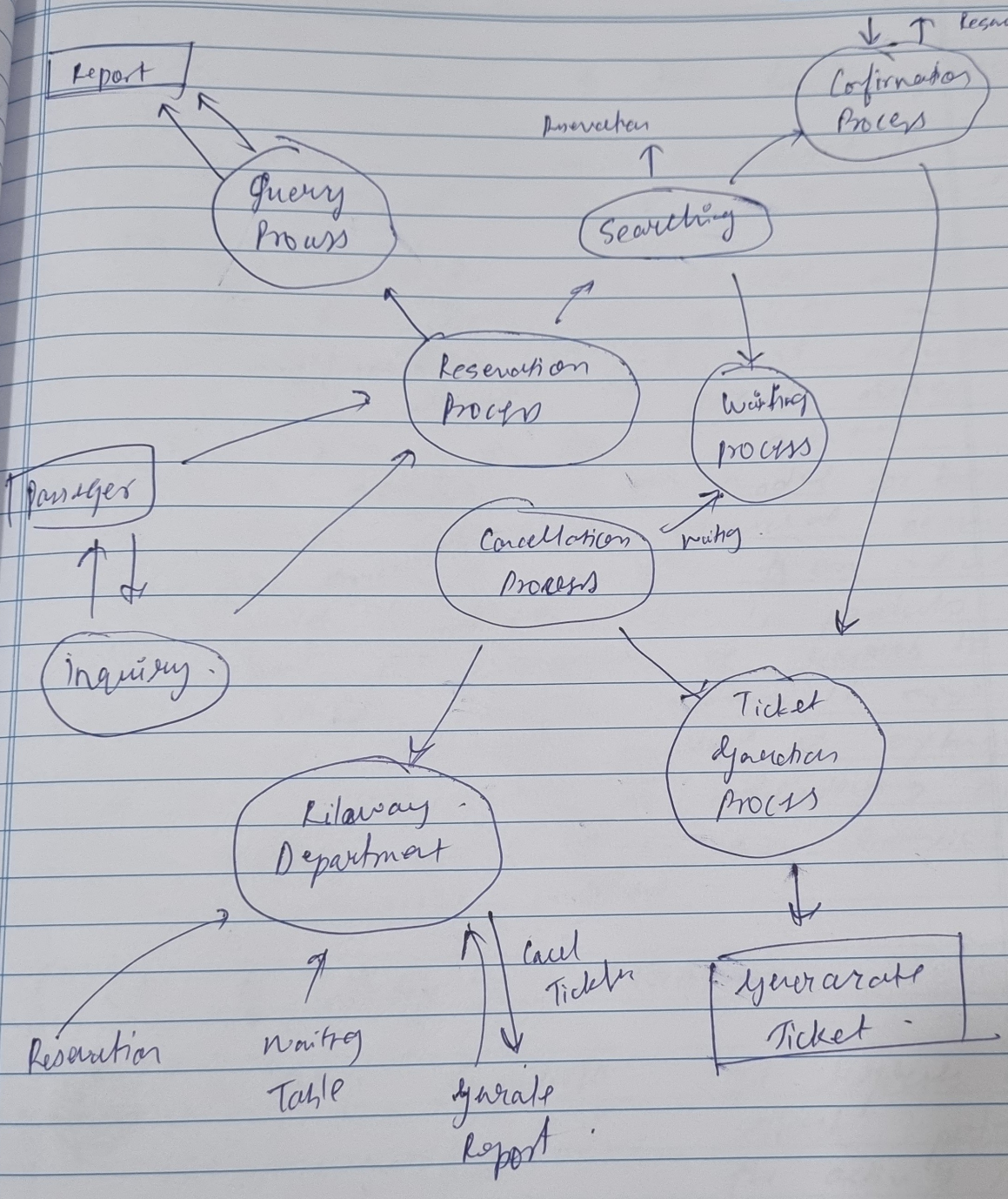


c) Level 2 :- a) A more details breakdown of from level 1.

a) Shows sub-process within the level 1 pro

3) highlights data flows & data stores at level of granularity.

4) Provides a more comprehensive view of in system processes & their interactions.



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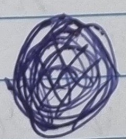
:- Experiment 5 :-

Aim: Develop activity & state for the project.

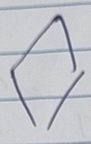
- Activity diag. can be used to understand the flow of work that an object or component perform
- Is often associated with several classes.
- one of the benefits of activity diag. is the representation of on current activities.
- one of the strengths of activity diag. is the representation of current activities.
- provide a workflow of the model for business
- are very serves to flowchart because you can create a workflow from activities.
- are used to show workflow in parallels.
- can depict the process of resources to share various activities making it easier to visualize resource consent & optimize.
- help in documenting & understanding complex business process making them an essential tool in business process.

- Elements of Activity diagram.

1)  : Start Symbole : It represents the start point of the activity flow. and indicates where the process or activity begins.

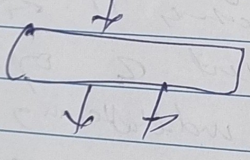
ii) [Activity] : Activity : Depicts the
symbole: That
model

These symbols include small descrip

iii)  : decision symbole : decision nodes
used to model
decision po

the process depending upon the choice
flow or control can take multiple pa

iv) → : Connection : are use for c
symbole action & deci
action and
process. It shows the sequence of activ

v)  : fork : splits an
symbole. storage acti
flow into two
concurrent activities synchronize with
associated things.

vi) [condition] : guard : placed nea
expression decision
condi. an activity know under
direction. flow that split in

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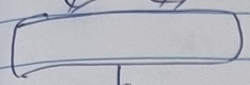
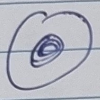


: Join Sybole : Combins two concurrent activity and introduce them to a flow where only one activity.



: End Sybole. : Masks the end state of an activity and represents the completion OR all flows at process

Explanation of Activity Diagram

It Represents the process of a user reserving a hotel room in a hotel management system.

→ The user begins with the reservation option
→ the system checks there are available rooms if not display "no room" is available the user enters guest information confirms the reservation and proceeds for the payment
→ If the payment is successful if yes, it confirms the reservation and if not it display "Payment failed" message.