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QUESTION 1

As the head of company, I will make sure the following rules are followed:

① Client & Employer

The software engineers of the company will act in a such a manner that they provide the client with best services & it is in the best interest of their client & employer's ^{are}, consistent with public interest.

The software engineer should make sure that they are honest about their competence level & expertise to their clients. Moreover, they should use the client's property with their consent. And should not commit any ~~further~~ illegal act knowingly. They should also keep the confidential information of client and his/her organization private & should report any significant issue (if they face any) to the client or employer.

② Product

Software Engineer will ensure that their product & any modification related to it meets the highest professional standards possible. The software engineers will make sure that the product is of reasonable cost, high quality & done in a reasonable time schedule. Moreover, they should ensure that significant tradeoffs are clear & are accepted by both parties. The goals should be clear, proper & achievable. They should identify & address proper ethical, economic, legal & environmental issues related to project and should ensure that they have used the best technique for the work to be done.

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QUESTION 2

The FAST's level of maturity is 'managed level'. This is because FAST has been working for ages now, the detailed analysis has been done. Proper documentation & clear standards have been made for the management. The measures are further analyzed & products are available after extensive analysis. Therefore, the softwares are furthermore extended for more efficiency & product quality analysis.

QUESTION 3

The observational technique that is used to understand operational processes & can be used to help derive support requirements for these processes is called Ethnography.

→ Disadvantages :

- ① It is a time consuming process and requires a well-trained researcher with enough knowledge.
- ② It is difficult to validate the ~~researcher's~~ researcher's conclusion & also hard to eliminate observer's biasness.

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QUESTION 4

The most suitable model for this project is 'Plan Driven Model' or more precisely a V model. This is because the drone is a highly critical product and should work with the highest possible efficiency. There is very little scope for mistakes so it needs to go through enough testing. In V-model, the testing process is interleaved w/ the progress of requirements can be easily validated and further changes can be made with little effort. Moreover, one can easily go back & forth in analysis phase & since all requirements are predefined, therefore it will be plan driven.

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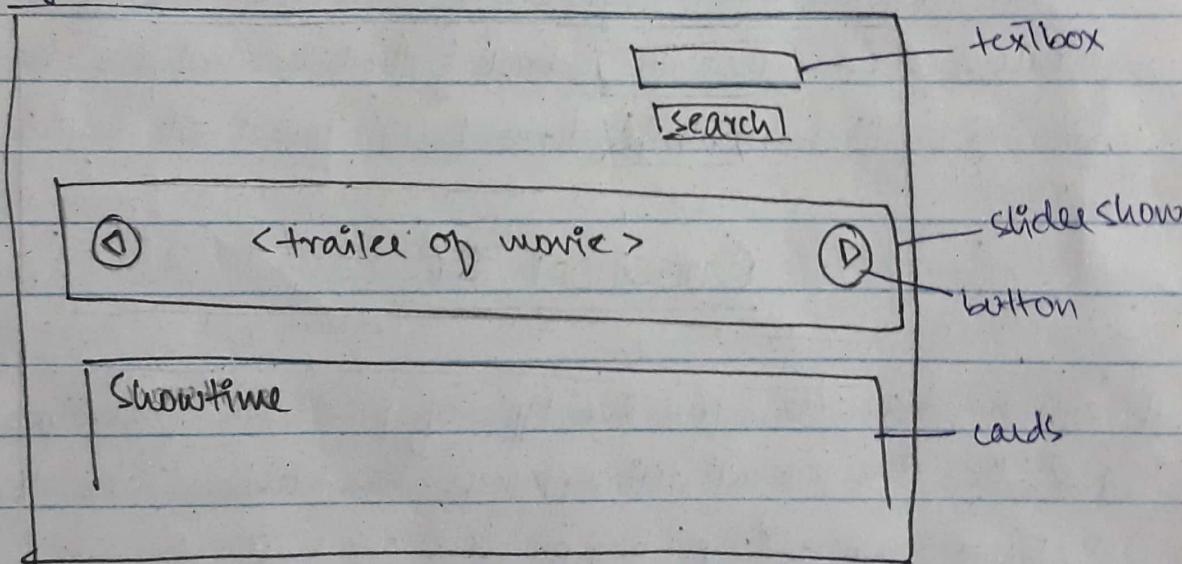
QUESTION 5

- ① Reduce demand on short term memory

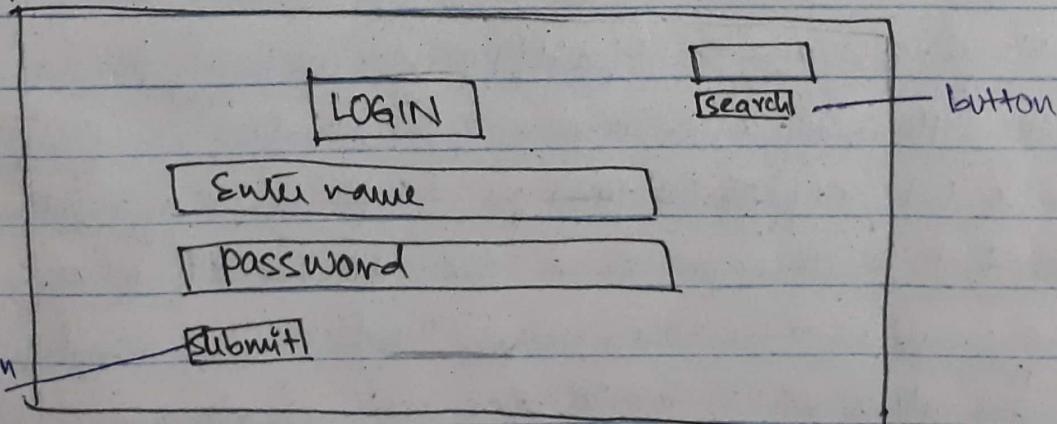
Since the database was connected in our project of Online Ticket Booking, it was easier to retrieve info of the user & it reduced the redundancy.

- ② Allow user to put current task into meaningful context

pg 1



pg 2



The page is easily self navigating. On first pg the user would search any query or swipe the trailer of movies. The 2nd pg gives clear instructions about logging in with buttons.

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QUESTION 6

- ① Task elaboration, also called stepwise elaboration is a mechanism for refining the tasks that are required to accomplish a desired task. One should define & classify task.
- Object Elaboration is to examine information extracted by use or use case and extracts object from it. The objects are then categorized into classes & attributes are defined.
- ② → We made activity diagram for our project to elaborate the steps used to accomplish a certain task.
→ We made class diagram, extracted objects from use case and defined the attributes of each class to elaborate our objects.

QUESTION 7

- (i) Product standard — Because the procedures that are applied for the development of product are included in product standard.
- (ii) Process standard — It specifies a certain process based procedure and is a support tool for process.
- (iii) Process Standard — Because SRS is a document that consists of details of whole process & it gives the structure of a document to be followed.
- (iv) Process Standard — Review of activities during the whole process are being considered.
- (v) Product Standard — Because milestones for product are being designed where review has to be conducted.

QUESTION 8

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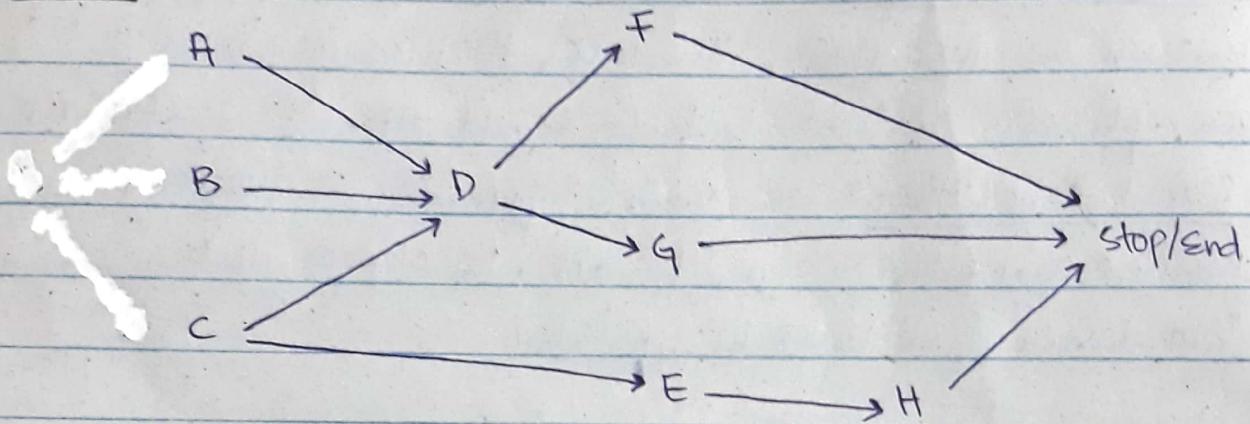
A company have to define these type of processes & have procedure in place like The product delivery process has business acquisition & Test etc. whereas Supporting processes have business management etc. So in order to be conformant with ISO 9001, they should be defined in above way. This demonstrates that quality processes are being followed, so this allows flexibility across company & industrial sector. Quality standards that are appropriate for type of software being developed are important. Small companies can have unbureaucratic processes & still be compliant to ISO 9001, whereas the flexibility does not allow to make assumptions about similarities & differences b/w processes in different ISO 9001 compliant companies. Some companies have ^{rigid rules} ~~have~~ of keeping detailed records of quality of processes whereas, others may keep minimum records in a less formal way.

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QUESTION 9

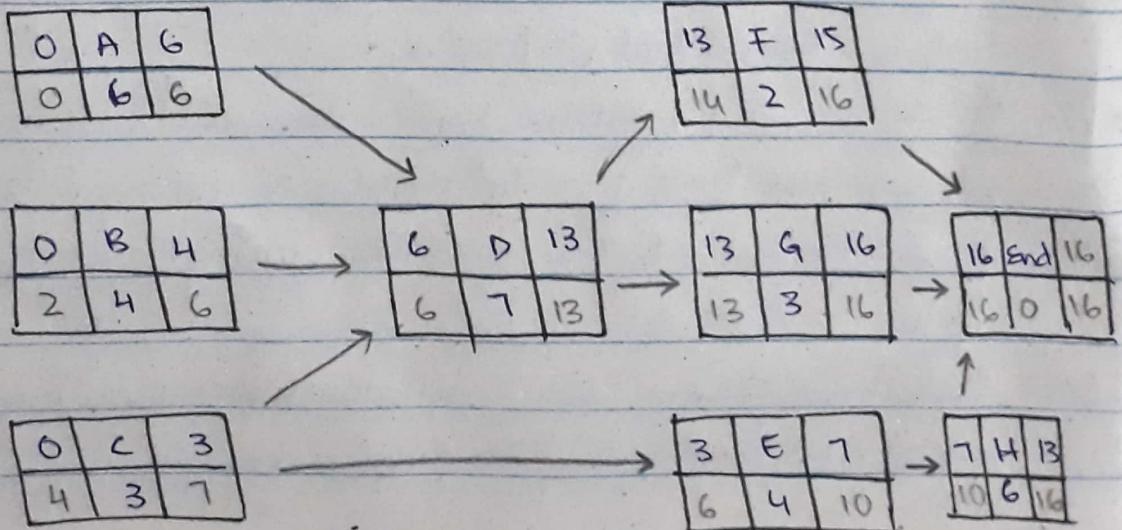
Part(A)



Part(B) : There are 7 paths in the network.

- (i) A, D, F, End $\rightarrow 6 + 7 + 2 = 15$
- (ii) A, D, G, End $\rightarrow 6 + 7 + 3 = 16 \rightarrow$ This is critical path.
- (iii) B, D, F, End $\rightarrow 4 + 7 + 2 = 13$
- (iv) B, D, G, End $\rightarrow 4 + 7 + 3 = 14$
- (v) C, D, F, End $\rightarrow 3 + 7 + 2 = 12$
- (vi) C, D, G, End $\rightarrow 3 + 7 + 3 = 13$
- (vii) C, E, H, End $\rightarrow 3 + 4 + 6 = 13$

Part(D)



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Part (E)

$$\text{Free float on E} = 7 - 0 = 7$$

$$\text{Total float on E} = 6 - 3 = 3$$

Part (F)

Yes, it will affect the path. New path will be $B \rightarrow D \rightarrow G$ with duration of 17 weeks.

QUESTION 10

<u>Measurement parameter</u>	Count	Weighing factor		
		Simple	Avg	Complex
EI	6	3	4	6
EO	1	4	5	7
EQ	4	3	4	6
ILF	1	7	10	15
EIF		6	8	10

QUESTION 11

LOC helps in determining the cost of software project by:

- ① Time taken to write a certain number of lines of code.
- ② No. of errors that were found per 'k' lines of codes.
- ③ No. of pgs of documentation per 'k' lines of code.
- ④ The total cost that was invested in k loc.
- ⑤ Per person how many lines of code were written.

The above details are extracted & compared with historical / past references to calculate actual cost of product.

2 Limitations:

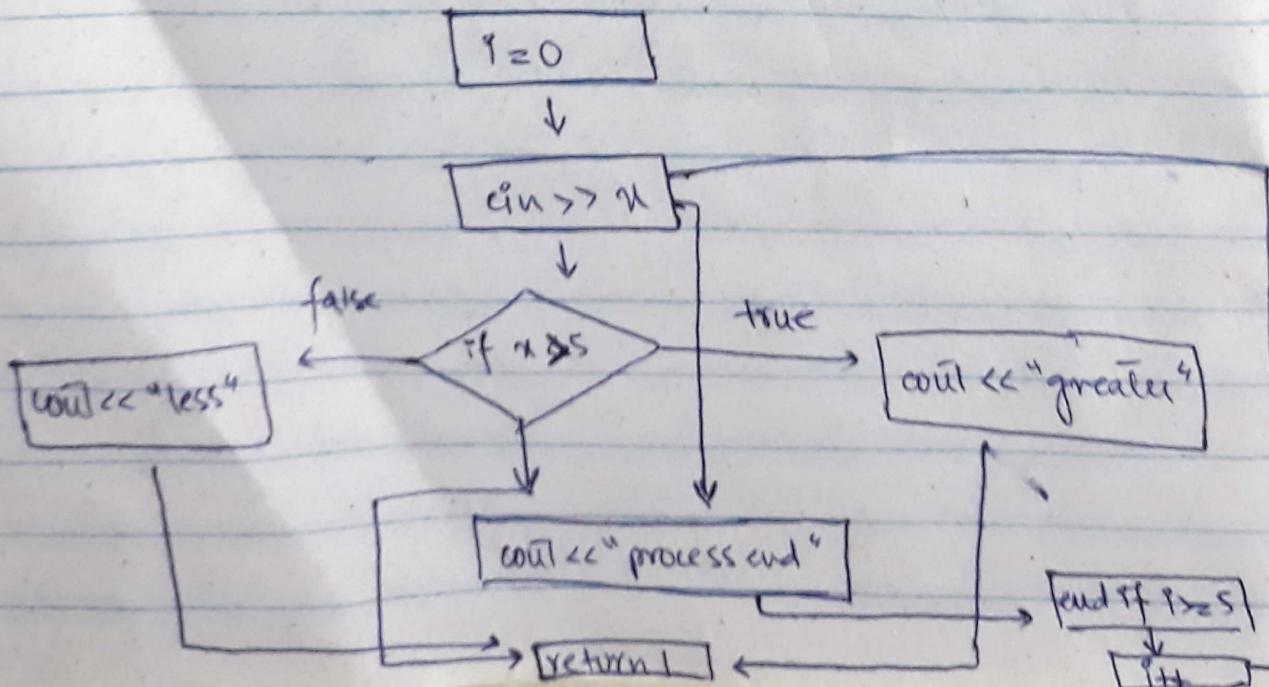
- ① The loc might depend on the language used to write & it is argued that it is not a reliable metric as it will penalize short efficient programs.
- ② The future lines of codes are difficult to analyze & estimate.

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QUESTION 12

```
#include <iostream>
using namespace std;
int main() {
    int x;
    for(int i=0; i<5; i++) {
        cin >> x;
        if (x >= 5) {
            cout << x << " is greater than 5 ";
        }
        else {
            cout << x << " is less than or equal to 5 ";
        }
    }
    cout << " process end ";
    return 0;
}
```

→ The code has a simple if else loop. It is taking input of value x.
If it greater than 5 it will print that by going in loop else
it will directly go out of loop and print process end.



The independent path is the one in which the process is printing process end. If x value is greater than 5 or loop i value is greater than 5 The loop will not work, it will directly print process end. & let the user know.

If value of $x < 5$, it will go in loop to check condition.

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QUESTION 13

Reactive Risk Management

- ① Incident Report
- ② Accident Report

Once a hazard occurs, only then will employee take action to prevent it or lessen the damage.

Proactive Risk Management

- ① Audits and inspections
- ② Surveys

Hazards are identified before the occurrence.

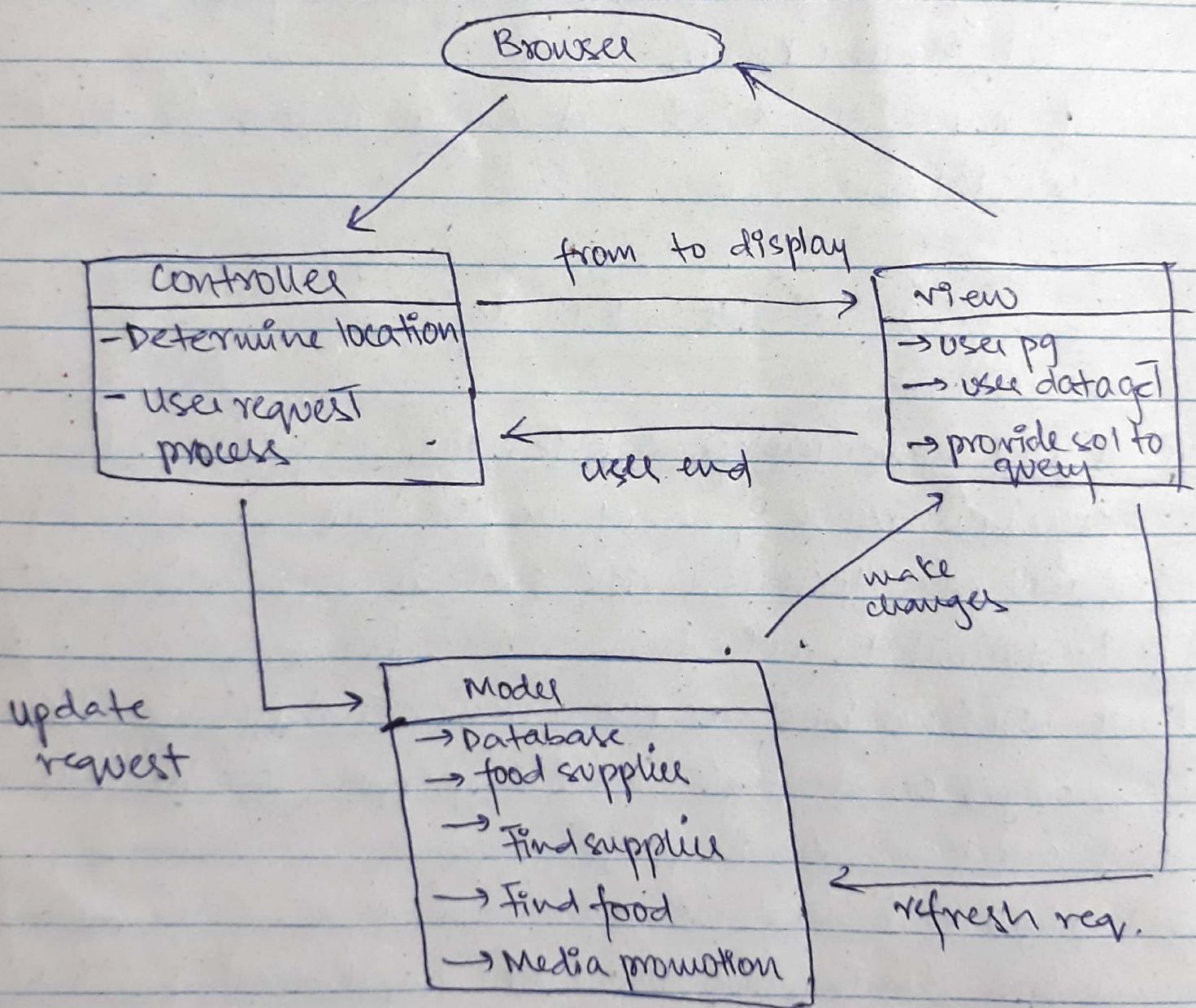
QUESTION 14

- ① It will have project risk ie. the budget allowed, schedule drawn & no. of people work.
- ② It will have technical risk such as maintenance prob, implementation of design, login failure.
- ③ It will have business risk ie. market risk (competitor enough) or strategic risk (inappropriate location)
- ④ It can have issue in project size.
- ⑤ It might have some unknown risk that might come to surface after the implementation or at testing.
- ⑥ It might also have predictable risk that is not finding food.

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QUESTION 15

Architectural pattern used is Model view controller.



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QUESTION 16

Arguments for testing by Developers

- ① The process of testing becomes easy as the developers know their code and the part that needs testing.
- ② It takes less time as they know the code.
- ③ Generating test cases can be easy as the code is not new to them and they know functionalities clearly.

Arguments Against testing by Developers

- ① It is difficult to point out/identify your own mistakes.
- ② The efforts of developer increases and it may compromise the quality of code.
- ③ As to reduce their own error rate, testing may be compromised.