Assignment - 1

[Software Engineering ETCS 303] DATE: 23-10-2021

Name - Syeda Reeha Anasar
Enrolment No. - 14114802719
Group - 5C7

Ans 1. **SOFTWARE**

These instructions that tell a computer what to do is called software
(How to perform tasks)
Set of instruction to acquire inputs and to manipulate them to produce desired O/P in terms of function and performance as determined by the user of software.
It also includes set of documents, such as software manual which helps user understand the software system.

SOFTWARE ENGINEERING

It's the systematic application of engineering approaches to the development of software. A software engineer is the person who applies the principles of software engineering to design, develop, maintain, test and evaluate computer software.
(systematic application of engineering approaches to develop a software)

SOFTWARE PROCESS or Software methodology

It's a set of related activities that leads to the production of the software, these activities may involve development of software from scratch, or modifying an existing system.

UPF : Unadjusted Func" point cont
VAF : Value adjustment Factor

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Ans 2. given that

I = 32 E = 24 N = 2
O = 60 F = 8

Value of function Point metric = UPF x VAF
or Count Total * [0.65 + 0.01 * ΣFi]

Characteristics	Count as C	Complexity Avg. (CA)	CA * C
No. of user I/P	32	4	128
No. of user O/P	60	5	300
No. of user inquiries	24	4	96
No. of files	8	10	80
No. of external interfaces	2	7	14
			608

[Question didn't complete need weighing factors]

⇒ 608 X (0.65 + 0.1 X Σ(Fi))

608 x (0.65 + 0.1 x 42] → avg count < 3
1 to 14
14 x 3 = 42

= 608 x [0.65 + 0.42]

= 608 * 1.07

= 650.56 ₹

Ans 3

A logical DFD can capture current and necessary activities required for a process. A new logical DFD models a new set of activities and functions. A current physical DFD depicts the current software, hardware and DB and people to carry out the activities, new physical DFD models a new system implementation

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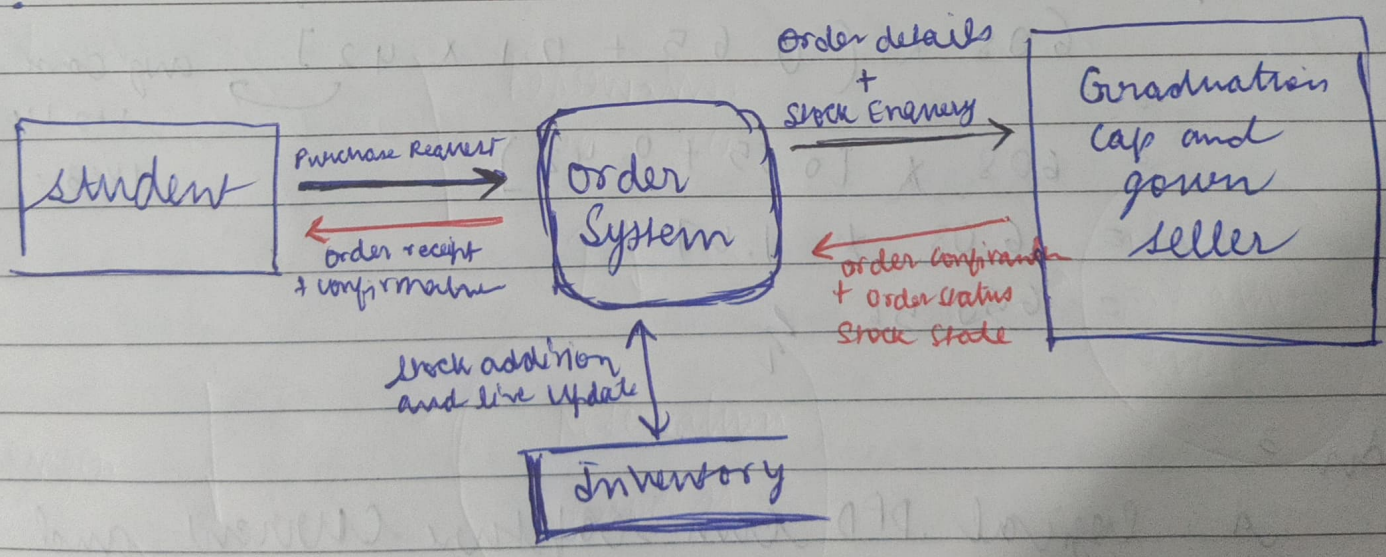
LOGICAL DFD

- → A type of DFD that defects how the business operates
- → Focusses on business activities
- → A process is a business activity.
- → A data store is a collection of information
- → simple

PHYSICAL DFD

- → A type of DFD that defects how the system is implemented
- → Focusses on system implementation
- → A process is a software program or manual procedures
- → Data stores are Databases computer files and paper files
- → complex

Ans 4.



DFD Level 0

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Ans:- This is the case of embedded mode and model is intermediate COCOMO

$E = a_i (KLOC)^{d_i}$

$= 2.8 (400)^{1.20} = 3712$ PM

Case I :

Developers are very highly capable with very little experience in the programming being used

$EAF = 1.29 \times 0.95 = 1.22$

$E = 3712 \times 1.22 = 4528$ PM

$D = 2.5 (4528)^{0.32} = 36.9$ M

Case II : requires more effort and time. Hence, low Qualify developers with lot of programming language experience could not match with the performance of very highly capable developer with very little experience

Ans:

The amount of man power individual = 8 PY

= 96 persons-months

a) as no. of lines of source code,

$L = \left(\frac{E}{a}\right)^{1/b}$

$L(SEL) = \left(\frac{96}{1.4}\right)^{1/0.93} = 94264$ LOC

$L(SEL) = \left(\frac{96}{5.2}\right)^{1/0.91} = 24632$ LOC

b) Duration in months can be calculated by means of eqn

$$D(SEL) = 4.6 (L)^{0.26}$$
$$= 4.6 (94.264)^{0.26}$$
$$= 15 \text{ months}$$
$$D(SGL) = 4.1 (L)^{0.36}$$
$$= 4.1 (24.632)^{0.36} = 13 \text{ months}$$

c) Productivity is the line of code produced per persons/month

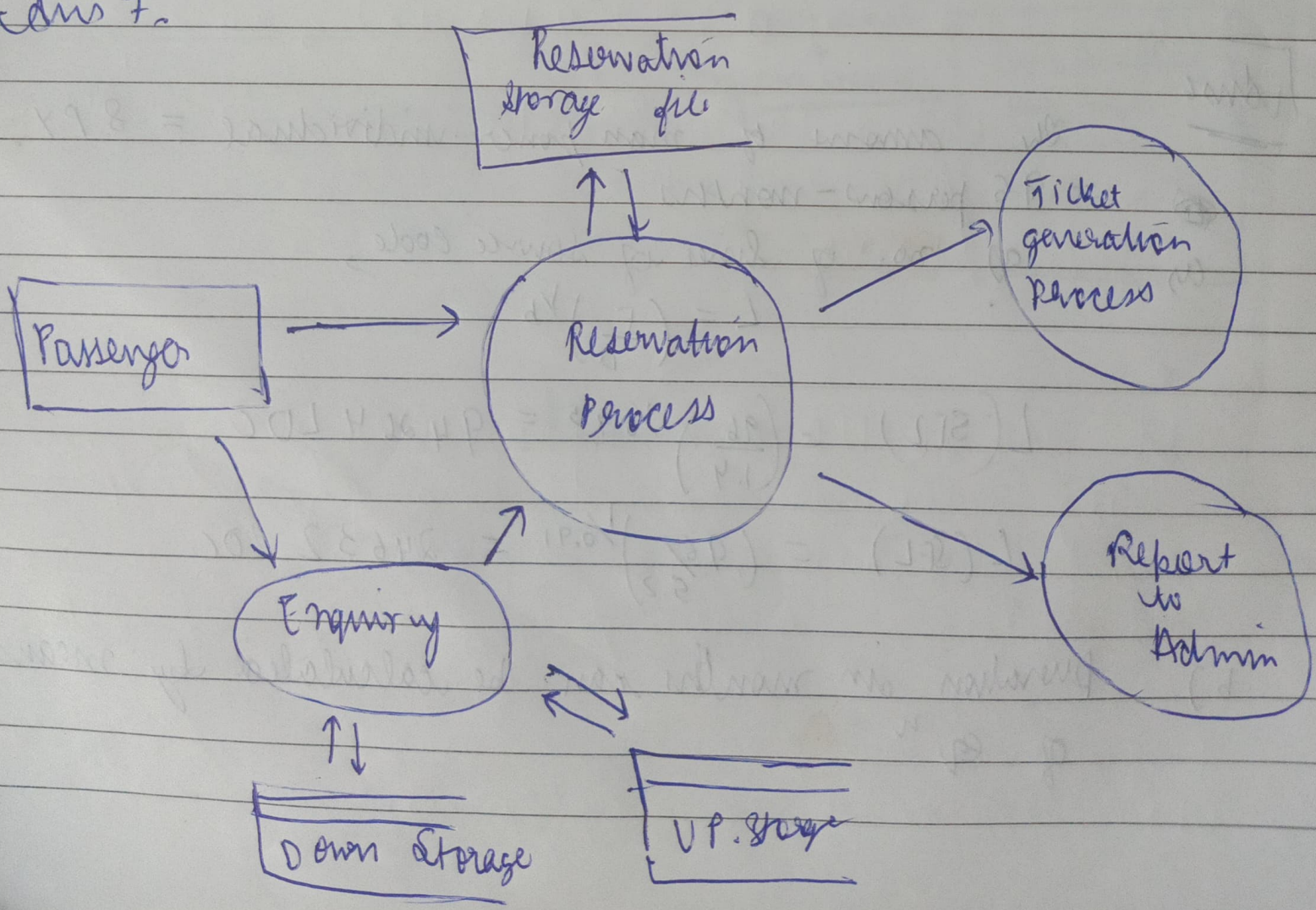
$$P(SEL) = \frac{94264}{8} = 11783 \frac{LOC}{Person} - Years$$

$$P(Years) = \frac{24632}{8} = 3079 \frac{line}{Person} - Years$$

d) $M(SEN) = \frac{90P-M}{15M} = 6.4$ Persons

$M(W.P) = \frac{96P-M}{15M} = 7.4$ Persons

Ans 7.



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Ans 8.

→ Iterative enhancement mode might lead to difficulties on various situations some of them are :

1. For handling complex dependencies
2. An overall plan, an agile leader and agile PM practices is must without these it will not work
3. Strict delivery management dictates the scope, functionality to be delivered, and adjustment to meet the deadline.
4. Depends heavily on customer interaction, so if the customer is not clear team can be driven in wrong direction.