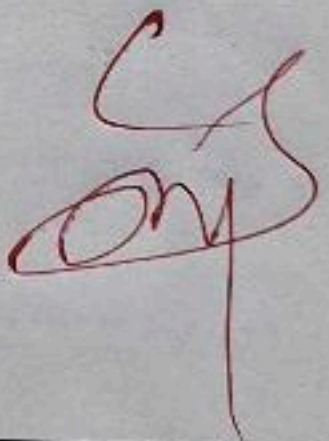Assignment no :-   04

Topics covered :-
- Software Design .principle and concept
- Cohesion and coupling

Date of performance :- 23-08-2022

Evaluation Criteria	Marks (out of 3)	Date	Signature of Instructor
Punctuality	2·2		
Problem solving technique	2·2	23-08-2022	
Attainment level (out of 3)	2·2		

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Assignment No-04

Q.1> Describe the software Design, principle & concept.

- **Design principle** :-

    For every interface design, it should usability characteristic like response time, help facilities, error handling, menu & command labeling, application accessibility, etc.

- following are some software design principle

- **Anticipation** :- means it should let the user know its next step or next move

- **Communication** :- let the user know the status of any activity initiated by him through some text message or through some img

- **Consistency** :- must be maintained throughout the software design.

- **Efficiency** - the design of the interface must be optimize the end user's work efficiency

- **Focus** : the software interface should be on the user task at hand

- **Learnability** :- The application must be design to minima learning time

• Concept of Design

① <u>Abstraction</u> :- when we consider 'modular solution' to the application's these are many level of abstraction possible.

② <u>Architecture</u> :- Software architecture means the complete structure of the software, in the number of ways, this structure provide basic for conceptual integrity for a system.

- the architecture is the complete structure or arrangement of the program components in such a way that they interact with each other.

③ <u>Patterns</u> :-
- A pattern is a ~~structs~~ thing. which conveys the essence of a proven solution to a recurring problem within a certain context.

④ <u>modularity</u> :-
The modularity consist of software architecture & design pattern. i.e software is divided separately · according to name and addresses· of components any sometimes it is cally a modules.

⑤ <u>Information Hiding</u> :-
The module of the large problem must be specified & designed properly so that information present within a module is not available to other module that do not require such information.

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Q.) 2) Explain Cohesion & coupling

→ • Cohesion is an extension of the concept of information hidding. In cohesion, a module performs only one task within a software produce i.e. requires only a little interraction with procedure that are inother part of a program

• Cohesion is ordinal type of measurement and generrally dessicely "high cohesion" or "low cohesion".

• Cohesion can be represented as a "spectrum."

• High collision is always recommed but mid-range of the spectrum is often acceptacle.

• module that perform task that are related logically is logically cohesive.

Type of modules cohesion :

① **Functional cohesion** :- function cohesion is saiy to exist if the different element of a module, cooperate to achieve a single function

② **Sequential cohesion** : • A module is said to procen sequential cohesio if the element of module from the componeb of the sequence

③ **Communicational cohesion :-** A module is said to have communicating cohesion iif all task of the module refer to or update the same data structure.

④ **logical cohesion :-** A module is said to be logically cohesive if all the elements of the module perform a similar operation.

⑤ **Temporal cohesion :-** when a module include function that associate by the fact all the method must be executed in the same time.
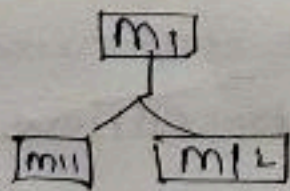
• **Coupling**

- Coupling is a measure of inter-relationship among various module in software structure. coupling always depends on the interface complexity among modules. i.e. the point at which reference or entry is made to a module.
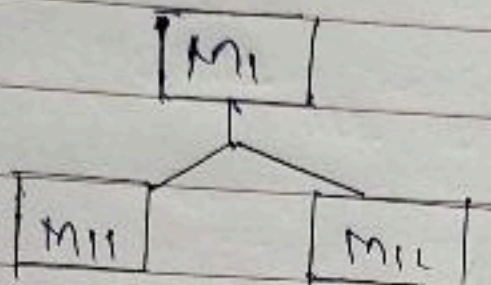
- it is also depends on what data passed across the interface among modules

• **Type of module coupling :-**

① **No-Direct Coupling :-** There is no direct coupling between M_1 & M_2

```
        [M1]
        /  \
    [m11]  [m1 2]        [m2]
```

2) Data coupling :- when data of one module is passed to another module, this is called data coupling.

3] Stamp coupling :- Two module are Stamp coupled if they communicate using composite data item such as 'Structure object, etc. when two module passed non-global data structure.

4) Control coupling :- Control coupling exist among two module if data form one module is used to direct the structure.

5) Common coupling :- Two modules are common coupled if they share information through some global data item.