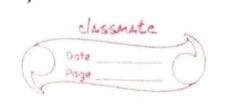
· W Software Engineering Modularisation: It is a technique to divide a software system into multiple discrete & independent modules which are expected to be capable of carrying out the work independently. Modules can be considered as the basic component of the softwares being independent, they can be executed separately. This process follows divide - and - conquer problem solving statergy. 3) HOVANTAGES OF MODULARISATION i) Breaking the entire problem into module makes the process easy to understand, develop and maintain. ii) With this process, features like Object oriented concepts, cohesion, coupling & reusability can be implemented easily.



concurrent development & execution of modules makes the software dev.

whis process facilitates abstractions of levels for understanding the requirement and wearking of the software

splitting the software into multiple independent units of execution similar to the modules that were getting executed parallely. Concurrency provides capability to the software to execute more than one part of code in parallels making the execution; integration and testing process more stable & faster.

For example, spell, or checker module.

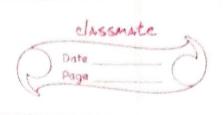
runs concurrently with the word processor facilitating grammer & spelling check during preparation of document

Relationship among modules.

modules have a characteristic to be independent but being part of a sw independent be associated with the they must be associated with the other modules with the same yw.

The characteristics of being independent but still related is important for any software. These characteristics are studied under cohesion I coupling-

Cohesion: It is a property that defines & measures degree of intra-dependebility within elements of a model. The greater the cohesion, the better is the program design. In other words, this property reflects the independentness of a module. The blowerer total independentness of the module is not allowed since these are the components of the software.



7 types of Cohesion:

st is unplanned and handom cohesion which might be due to breaking of this program into smaller modules for the sake of modularisation. Since it is unplanned, it to the confusion and inconsistency that creates problem for the programmers.

Jogical cohesion - Logical

If the cohesion is made on the basis
of logic of individual module such
that the module seems to be logically
independent, it is known as logical

ii) Temporal cohesion - TIME BASES

organised such that they are processed at a fimilar point of time, it is called temporal cohesion.

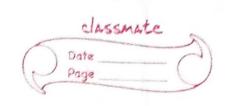
iv) Brocedural cohesion - Executed Sequencially When elements of a module are grouped together which are executed sequencially in order to perform a task, it is called procedural cohesion.

Secured Sequencially Data

o) Communicational cohesion when elements of module are grouped together which are executed sequencially and work on same data / information is called communicational cohesion. Sequencial cohesion-When elements of module are grouped because the output of 1 element serve as the input to another & so on, it is called

vii) Functional cooresion - Based on function
This is considered to be a highest
degree of cohesion & it is highly
expected elements to the module

sequencial cohesion.



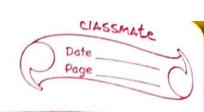
in functional corresion are grouped as they are all contribute to a single well-defined function. This type of cohesions can be supports reusability.

stis a measure that defines the level of inter-dependability among modules of a program. This proporty explains the level of module.

Interfaces & how they interact with each other. The lower the coupling, better is the program. In other words this property makes a bonding b/w the different modules of the program.

i) Content coupling When a module can directly occess
or modify or refer to the content
of another module, it is called
content level coupling.

5 levels of coupling -



ii) Common coupling modules have ulner multiple modules have global read & write access to some global data, it is called common/global coupling.

2 modules are called controlled coupling if one of them decides the fund. of the other module or changes its flow of execution.

Stamp Louplingwhen multiple modules share common data structure & work on diff, part of it; it is called stamp coupling.

Data couplingWhen 2 modules interract with
each other by means of passing
data as parameters, it is known
as data coupling. If a module passes
data structure as parameter then the
receiving module should use all its

