Q1. COUPLING AND COHESION

COHESION:

What is Cohesion:

- Cohesion is indication of the relationship within module.
- Cohesion shows the module's relative functional strength.
- Cohesion is a degree(quality) to which a component / module focuses on the single thing.
- Cohesion is intra-module concept.
- The word degree of intra-module means that how the elements of a particular module are related to each other.

Why Cohesion is required:

- Cohesion is required for better program design & better software design.
- Different elements of a module cooperate to achieve a single function.
- For example , a module containing all the functions required to manage student's academic details as in our project Campus Recruitment Project.
- So using Cohesion we can describe it using single sentence.
- Cohesion increases the readability of project.
- Cohesion increases the reliability of project.
- Cohesion makes us understand what a class or method does.
- It uses desriptive names.

How Cohesion can be used in Our Project Campus Recruitment System:

- High cohesion is always needed for better design.
- We will use it as a natural extension of information hiding concept.
- We will make a single well-defined function so that all module in function are grouped & whole function performs exactly one action.
- For example,
  scheduleInterview() in our project for scheduling jobs of students.
  login() for users.
- Our code would be like shown below:

```
public class CampusSystem
{
        private String studentName;
        private int timeForInterview;
        private String companyName;
```

```
    public void scheduleInterview()
    {
        // code for scheduling interview on particular date & time for student
    }
    public void login()
    {
        // code for logging inside recruitment system for users
    }
}
```

What is Coupling:

- Coupling is indication of relationships between modules.
- Coupling shows the relative independance among the modules.
- Coupling is degree to which a component / module is connected to the other modules.
- Coupling id inter-module concept.
- The word inter-module means that how different modules are related to each other.

Why Coupling is required:

- Coupling is required for better program design & better software design.
- Different modules shouldn't be much related to each other.
- Different modules should be independent.
- Low coupled classes are less affected by changes in other components.
- It makes program simple to understand in isolation.
- It is convinient to reuse.

How Coupling can be used in Our Project Campus Recruitment System :

- Low coupling is always needed for better design.
- Best way to reduce coupling is by providing API(interface).
- So we are making an android app.
- We will use public methods, public classes, interfaces and other interaction points between different classes and modules.
- We would pass data as parameter i.e. argument.
- For example,

```
showJobs(Company y);
getInfo(Student X);
```

- Our code would be like shown below:

```
public class Company
{
	public void getInfo(Student Z)
	{
		// code goes here
		Z.display(Object data);
		// more code
	}
}
```

Q2. Conceptual design, Technical Design, Exception handling, Fault tolerance

What is Conceptual Design:

Conceptual Design is design which tells the customer exactly what the system will do.

Why Conceptual Design is required:

- Customer gets the idea of the system, so developer team can analyse whether the system meets the customer's need or not.
- Because customer gets conceptual idea of system, if it doesn't meet the Customer's need then developer team will get idea not to proceed.
- It explains the observable external characteristics of the system to the customer.

How Conceptual Design can be used in Campus Recruitment System:

- We will use it in concept sketches and models.
- We will use it in making UML diagrams.
- We will also use it in making software user manual.

What is Technical Design:

Technical design is the design that allows system builders(developers) to understand the actual hardware and software needed to solve customer's problem.

Why Technical Design is required:

- It is required to get actual hardware and software need to the developer team.
- Developer team get the idea of actual hardware and software needed to develop the software, so if it is feasible they can proceed further.

How Technical Design can be used in Campus Recruitment System:

- We will use this to find out the tools required for our software development.
- We can estimate the number of hardware components required and thus the cost.

What is Exception Handling:

Exception handling is the method of building a system to detect and recover from exceptional conditions. Exceptional conditions are any unexpected occurrences that are not accounted for in a system's normal operation. It is difficult to protect a system from the effects of exceptional conditions because, by nature, all unusual occurrences cannot be anticipated when the system is designed.

Why Exception Handling is required:

- Exceptional handling is required to have normal flow of the program if any exceptional condition occurs in the program.
- If exceptional handling is not there in the system, system will crash.

How Exception Handling can be used in Campus Recruitment System:

- We will use it during coding phase to handle the exception in the code.
- We will use it to avoid NULL pointer exception like java.lang.nullpointerexception.

What is Fault Tolerance:

Software fault tolerance is the ability of computer software to continue its normal operation despite the presence of system or hardware faults.

Why Fault Tolerance is required:

- The importance of implementing a Fault Tolerance System is about service continuity or maintaining functionality in the event of system failure
- Tolerance System is highly needed in most enterprise organization especially for life-critical systems to continue providing service in the event of system fault.
- Fault tolerance can implement it to a computer hardware, network system, applications etc.

How Fault Tolerance can be used in Campus Recruitment System:

- We will keep a track at every checkpoint to check flow of operation.
- We will keep database of the system attached with main server.