



# Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India  
(Autonomous College Affiliated to University of Mumbai)

## End Semester Examination

January 2020

Synoptic

Max. Marks: 60

Class: T.E.

Course Code: IT51

Name of the Course: Software Engineering

Duration: 3 Hrs.

Semester: V

Branch: I.T.

Instruction:

- (1) All questions are compulsory
- (2) Draw neat diagrams
- (3) Assume suitable data if necessary

Synoptic

Q.1 a) steps to create SRS general description with example –6M  
create an outline, start with purpose, overview of the system to be built, Detail specific requirements( Functional Requirements, External Interface Requirements, other non functional requirements)  
Approval from key stakeholders.

Q.1 b) Incremental model – Explanation with diagram – 3M  
Advantages and Disadvantages—2M  
Example –1Mark

OR

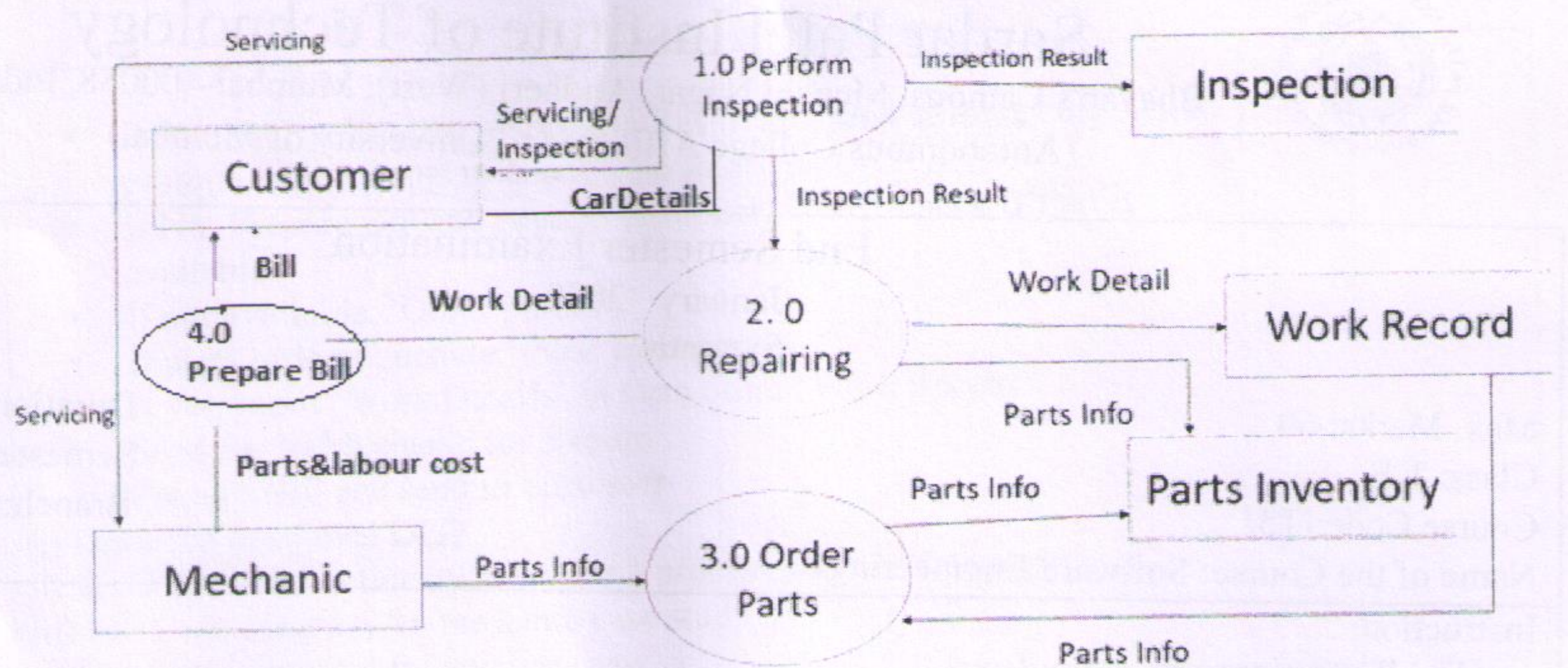
prototyping model – Explanation with diagram – 3M  
Advantages and Disadvantages—2M  
Example –1Mark

Q.2 a) Types of user interfaces with explanation –6M  
1) Command language-based interfaces  
2) Menu- based interfaces  
3) Direct manipulation interfaces

Q.2 b) Different types of coupling with example –6M  
Types of coupling : Data coupling, stamp coupling, Control coupling, common coupling, Conte coupling

3 Given the Event List  
(i) DFD



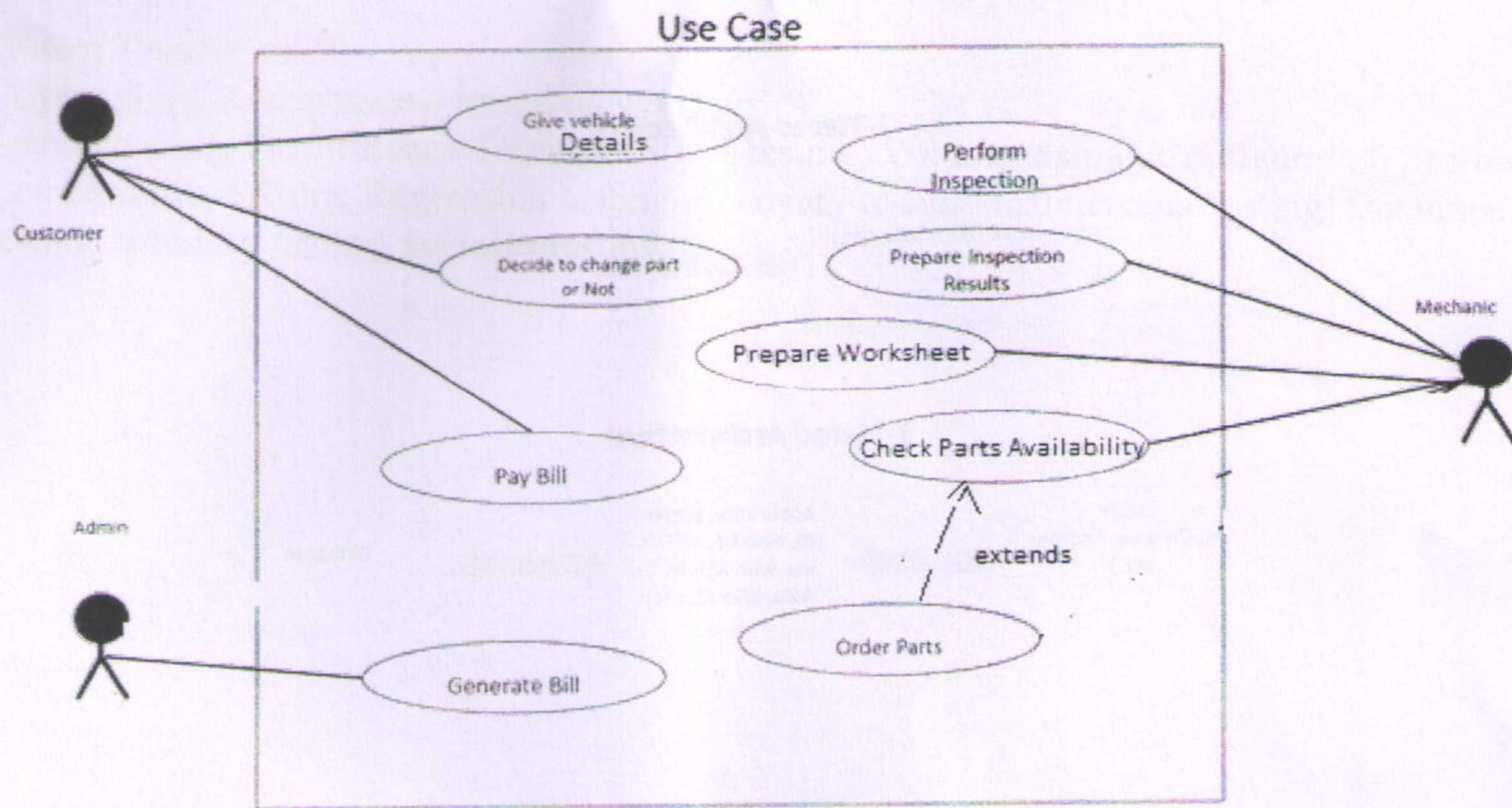


(ii) DD

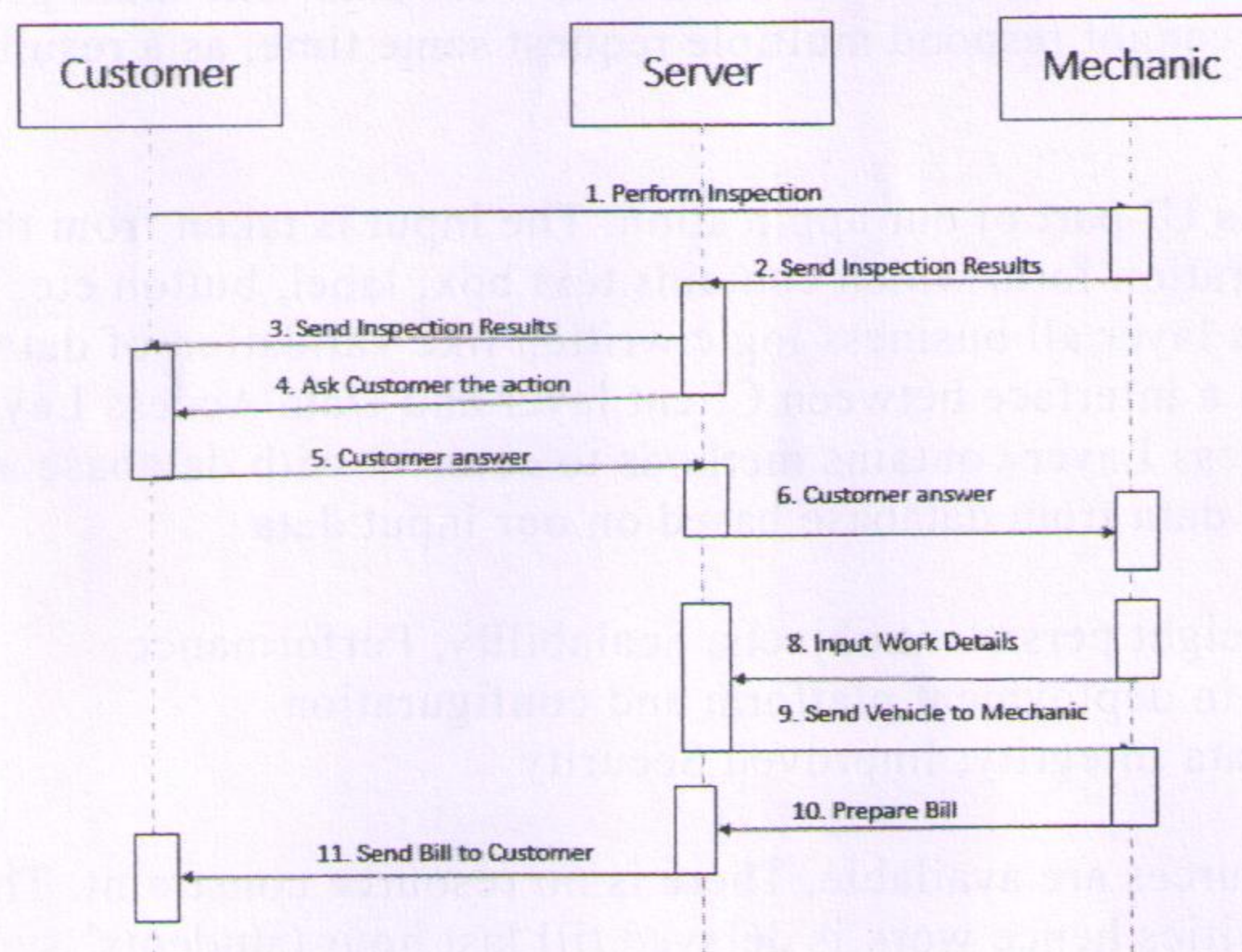
Data Store	
Name	Work Record
Description	Data Store where work details are saved
Elements	Record No., Work Detail
Access Rights	Admin
Volume	1GB
Master/Transaction	Transaction

Process	
Name	Check Part Availability
Description	Check if Parts are available in Parts Inventory
Inbound Data Flow	Faulty part name
Outbound Data Flow	Customer Decision
Process Logic	<p>If Customer does not want to 'change part' then 'Prepare Inspection Bill'</p> <p>If Customer wants to 'change part' then give 'change' to "Input work Detail"</p>



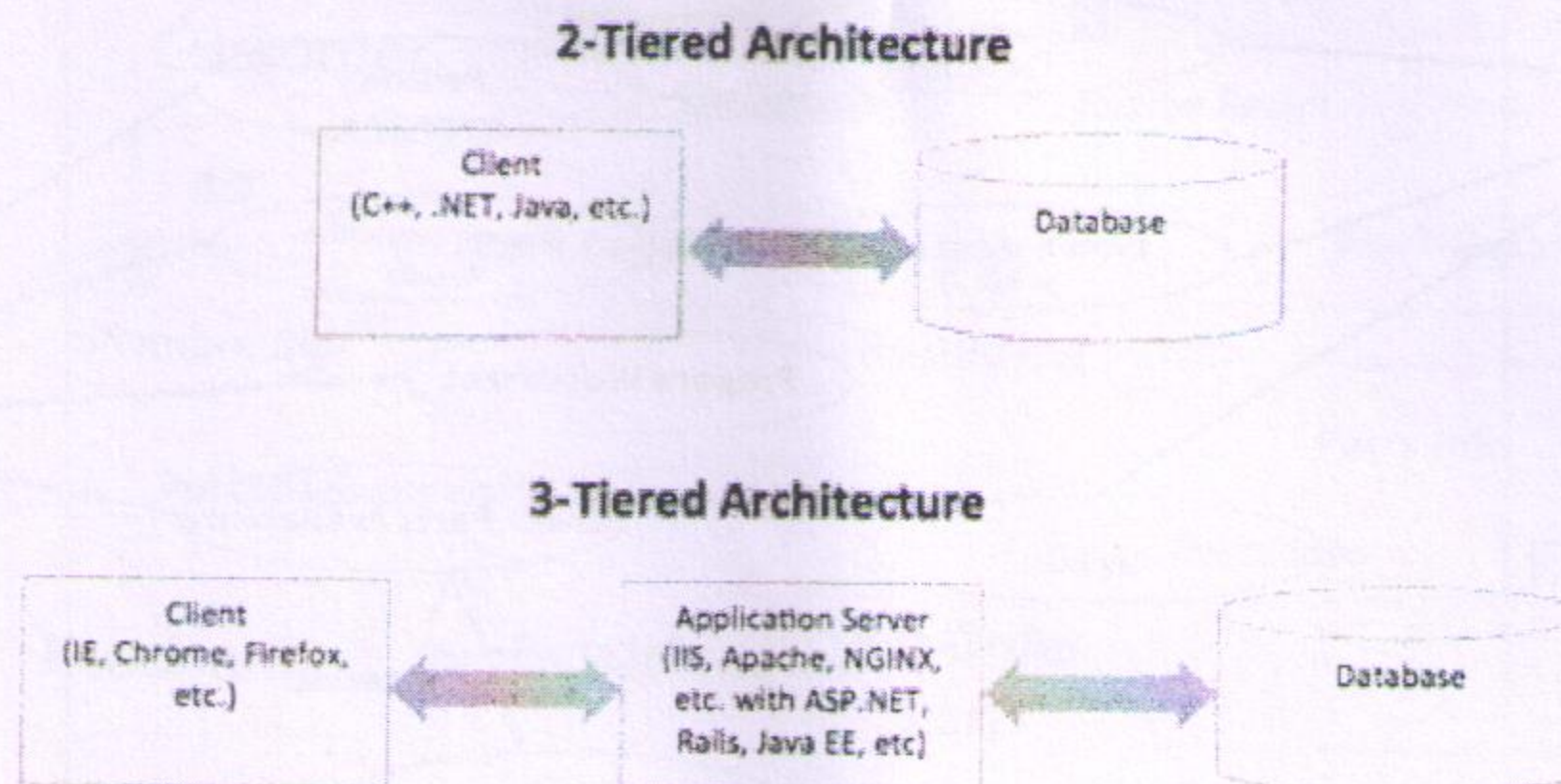


**Sequence Diagram**



4 a) Architecture diagram





The direct communication takes place between client and server. There is no intermediate between client and server. Because of tight coupling a 2 tiered application will run faster. Client sends the request to server and it process the request & send back with data. The main problem of two tier architecture is the server cannot respond multiple request same time, as a result it cause a data integrity issue.

### 3-Tier

**1) Client layer:** Contains UI part of our application. The input is taken from the user. For example designing registration form which contains text box, label, button etc.

**2) Business layer:** In this layer all business logic written like validation of data, calculations, data insertion etc. This acts as a interface between Client layer and Data Access Layer.

**3) Data layer:** Data Access Layer contains methods to connect with database and to perform insert, update, delete, get data from database based on our input data

#### Advantages of 3 tier

High performance, lightweight persistent objects, Scalability, Performance

High degree of flexibility in deployment platform and configuration

Better Re-use, Improve Data Integrity, Improved Security

4b) CPM assumes all resources are available. There is no resource constraint. The duration taken includes buffer in all activities hence work is delayed till last hour (students' syndrome). So project delay is possible

In CCPM the resources which are used in the critical chain activities are usually considered as critical resources. Activities that are not included in the critical chain while at the same time converging to critical chain are considered feeders. The main focus of CCPM is to eliminate the uncertain delays, task overestimation duration delays, and wasted internal buffers delays. In CCPM, project duration does not change even if all the activity safety margins were eliminated, because of the project buffer. Project buffer protects the project completion on the critical chain path, while feeding buffers protects the critical chain from path merging. Managing the buffer further improve the decision making of project control.

Q.5 a) Description of RMMM plan and one example –6M



Q.5 b) System Testing --6M

Alpha, Beta, Acceptance – based on who carries

Smoke testing, Performance Testing – Stress testing, Volume testing, Configuration Testing, Compatibility testing, Regression testing, Recovery testing, maintenance testing, Documentation testing, usability testing, security testing.