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Q1

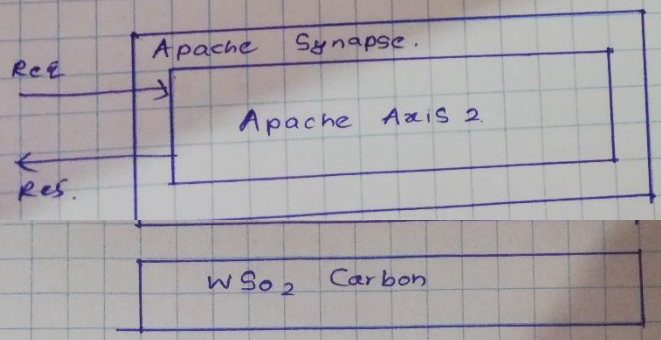
No: Date: / /

Question 1

a) i). Mediator Pattern.

ii). translate the msg to a one form to another form using XSLT mediator.
eg:- In the first message owners firstname and the lastname are as two fields but after ~~translating~~ translation we can merge as Owner Full name.

iii)



WSO2's core product is a middleware platform. that build on Osgi Concepts. using Service Oriented. Architecture. and ~~its~~ WSO2 builds. based on their. Carbon. Apache Synapse handle. different protocols. through SOAP based proxy services. and its based on. Axi2 Java mediation library.

iv). Proxy configuration is used to find the enpoint of a message and. if an end point is changed only. the proxy config should be changed.

v) i Pass through Proxy.
ii Secure proxy
iii. WSDL Based Proxy
iv. Transformer Proxy.
v. Logging Proxy
vi. Custom Proxy.

Q1.b)

1.

```
public interface IPaymentService {

 public void makePayment(double amount);

}
```

2.

```
public class BankPaymentService implements IPaymentService {

 public BankPaymentService() {
  System.out.println("Executing the bank payment service");
 }

 @Override
 public void makePayment(double amount) {
  System.out.println("You are paid for the bank " + amount + " LKR");
 }
}

public class ChequePaymentService implements IPaymentService {

 public ChequePaymentService() {
  System.out.println("Executing the check payment service");
 }
```

```
 @Override
 public void makePayment(double amount) {
  System.out.println("Your cheque payment " + amount + " is ready");
 }
}
```

3.

```
public class PaymentModel {

 private String type;
 private double amount;

 public String getType() {
  return type;
 }

 public void setType(String type) {
  this.type = type;
 }

 public double getAmount() {
  return amount;
 }

 public void setAmount(double amount) {
  this.amount = amount;
 }
}
```

4.

```
public interface FrontCommand {

 public void process();
}
```

5.

```
public class PaymentDelegator {

 private static final String BANK = "Bank";
 private static final String CHEQUE = "Cheque";

 public static IPaymentService selectPaymentType(String serviceType) {

  if (serviceType.equals(BANK)) {
   return new BankPaymentService();
  } else if (serviceType.equals(CHEQUE)) {
   return new ChequePaymentService();
  } else {
   return null;
  }
 }

}
```

Q2.a)

No :

Date: / /

Question 2.

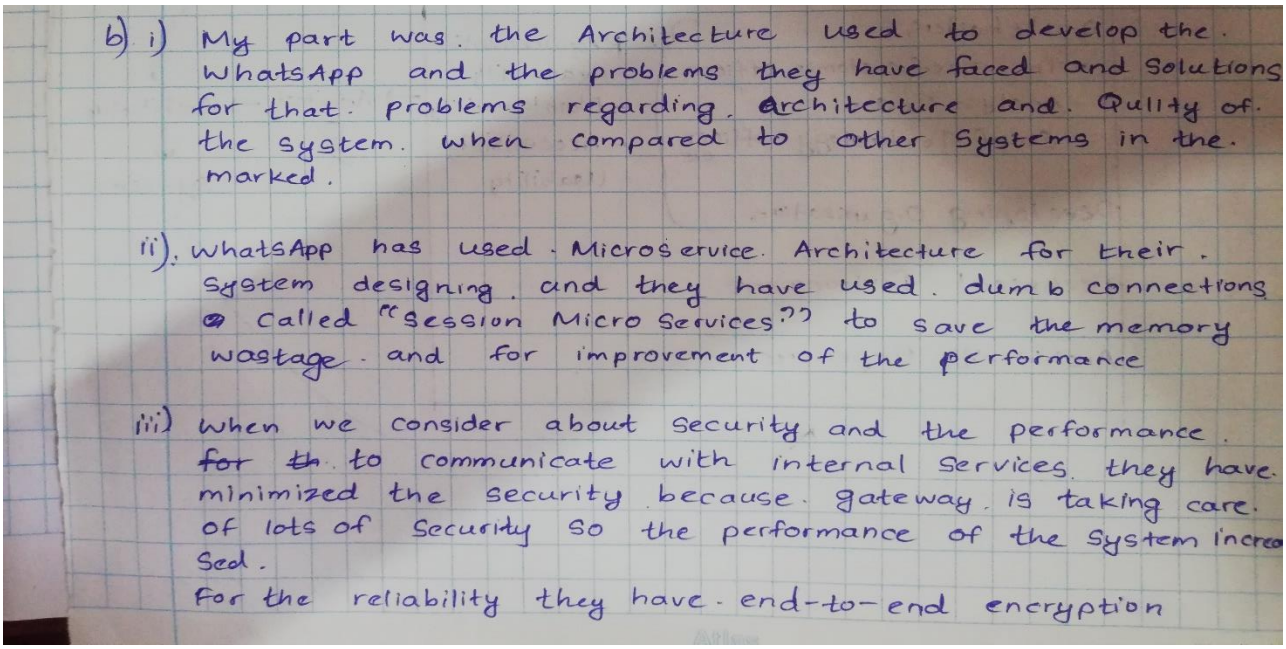
a) i). Basically Software Architect role is a main role in Software development. Some of their roles are. Creating business case for the system, Understanding the requirements, Creating and Selecting a Structure or Architecture, Implement the system based on the architecture are some of them.

ii). Because Software Architect is the one who ~~underst~~ create or select the architecture of the system. So if something went wrong in the requirement Analysis phase the whole Architecture of the system would fail.

iii) Non functional Requirements are not directly linked to any specific function of the System. They are typically cover business and systems quality attributes and there are three types of Non functional Requirements.

1. Quality Attributes - Qualifications of the overall product.
   eg - Performance.
2. Business Requirements - Business or Strategic decisions
   eg - Cost, System lifetime
3. Constraints - Decisions and agreements made with Stakeholders
   eg - ~~Not~~ Must use Open Source for the development.

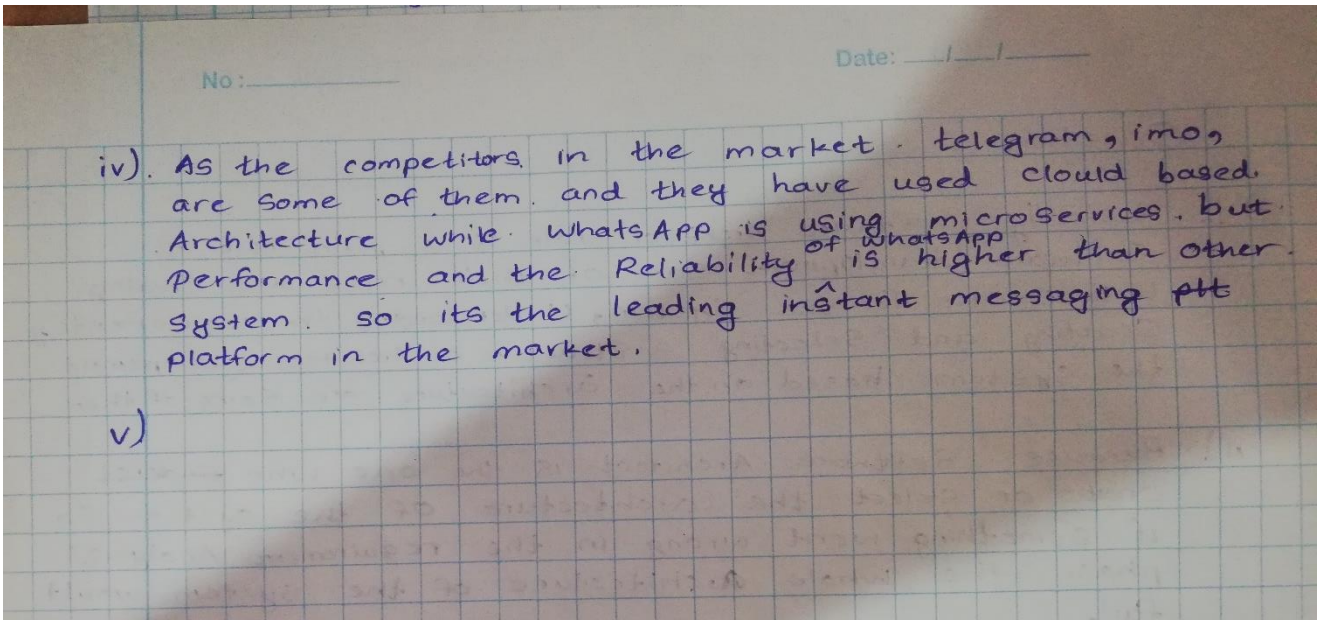
Q2.b)



b) i) My part was the Architecture used to develop the WhatsApp and the problems they have faced and solutions for that problems regarding Architecture and Quality of the system when compared to other systems in the marked.

ii) WhatsApp has used Microservice Architecture for their system designing and they have used dumb connections called "Session Micro Services" to save the memory wastage and for improvement of the performance

iii) When we consider about security and the performance for ~~th~~ to communicate with internal services they have minimized the security because gateway is taking care of lots of Security so the performance of the System increased.
For the reliability they have end-to-end encryption



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iv) As the competitors in the market telegram, imo, are some of them and they have used clould based Architecture while WhatsApp is using microservices but Performance and the Reliability of WhatsApp is higher than other system so its the leading instant messaging ~~plt~~ platform in the market.

v)

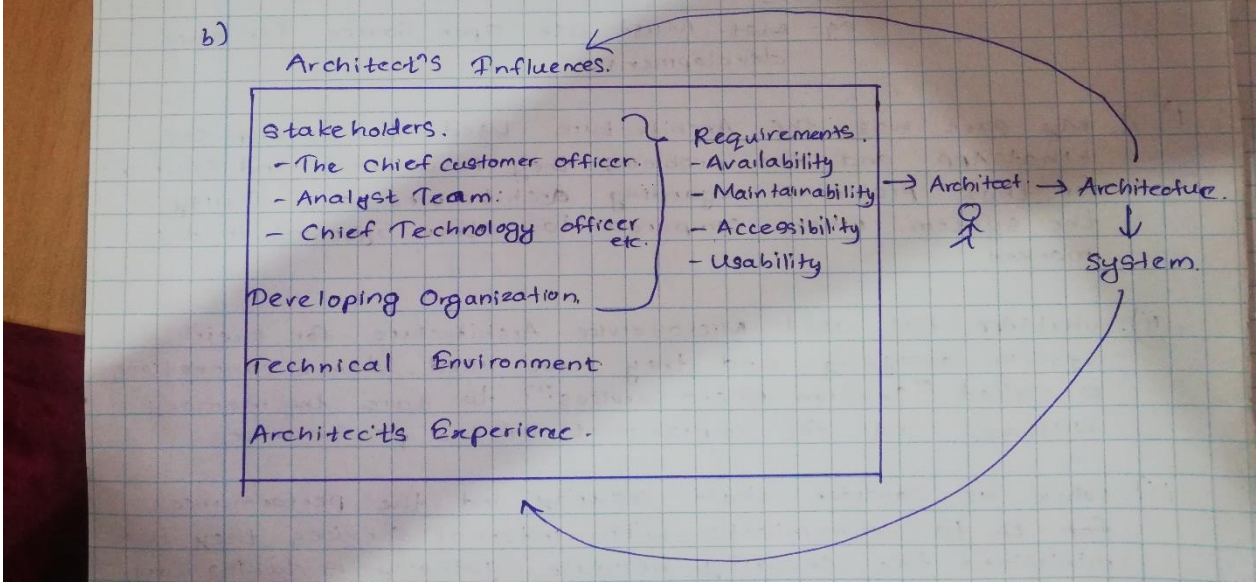
Q3

Question 3.

a) internal - Chief customer Officer , Analyst Team, Chief Technology officer

external - Third Party Software Provider , Customers , Analyst Team.

b)



c) i) Runtime Qulities.

- Security → because money transactions are made using Online App
- Interperability → Integrate all branches as one System.

ii). Design Qulities.

- Maintainability - if something need to be updated
- Modifiability - Requirement changes time to time.

iii). User Qualities.

- Usability - used by customers and other branches
- Accessibility - Access the items in the super market from online portal as well