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Assignment 1

### Question 1

#### Q1.1

For relatively simple use cases, a concise description is sufficient, especially when the system to be developed is a tiny, well-understood application. Simple use cases include adding a product comment or sending a message.

The most formal way for documenting a use case is to write a fully formed description. One of the most difficult tasks for software developers is gaining a thorough grasp of the needs of the users.

#### Q1.2

Use case	Brief use case description
Main end-users (Commissioner)	Internet ponzi schemes, cybercrime, online fraud, and scams will all be addressed by the system. The commissioner will have full administrator access to the system, including the ability to read, change, and delete data as well as give rights.
Pull daily and monthly reports	The system will keep records and generate performance reports to gauge progress in regards to complaints and POPI Act
Search for complaints	The public will be able to log/register concerns through the system. The procedure starts with the complaint being uploaded to the Online Portal or Mobile App. The ComplaintLoaded state will be applied to all loaded complaints. Accepted or rejected complaints are the two options.
POPI Act compliance	Monitor financial service providers. Enforce financial services legislation including the rollout of POPI Act.

Q1.3

Use case name	Financial Service Provider POPI Act Compliance			
Scenario	Check compliance of financial service provider			
Triggering event	Register new financial service provider			
Brief description	Monitor financial records of all companies formed and operating as financial service providers. Detect the movement of sizable monies from an individual's accounts. Make sure that products and services being sold by financial services providers do meet the needs of the consumers/public.			
Actors	Commissioner			
Related use cases	Search for complaint use cases which may trigger financial service compliance.			
Stakeholders	Researchers, Admin assistants, South African Reserve Bank, FSCA, Parliament, System Admin			
Preconditions	The system must be launched and functional. Financial service providers must be made aware of the rollout of the new system. The system has to be integrated into the reserve bank.			
Postconditions	Financial service provider information must be up to date at all times. The safety and integrity of the information must be guaranteed at all times. The system should be up to date at all times.			
Flow of activities	<table><tr><td>Actor</td><td>System</td></tr></table>		Actor	System
Actor	System			

	Commissioner reviews new service provider information.	The system pulls the information from the reserve bank as it is being captured.
	Commissioner monitors sizable money of individuals using service providers	The system triggers an alert when a transaction exceeding a specific limit is reached.
	Commissioner reviews the individual products offered by the service provider to ensure it doesn't go against POPI Act and is safe for users	The system will flag any illegal product offered by a service provider.
	Commissioner controls who should be in practice based on their compliance	The system will be able to handle the suspension and revocation of financial services licenses.
<b>Exception conditions</b>	Misleading service provider information Out of date information Idle or expired information Stolen Information Corruption in management	

## Question 2

### Q2.1

Make use of Mainframe computing hardware.  
Use Fiber network hardware.  
Use Nginx server system software.

### Q2.2

DBMS such as SSMS to manage the database, Framework such as Node js to build the system to interact with all stakeholders involved.

### Q2.3

	Categories	Requirements
<b>Nonfunctional</b>	Usability	The system should allow consumers and the general public to track their current complaints, as well as search all previous complaints and their resolutions. Consumers and the general public should be able to obtain information in the form of research articles and films.
	Reliability	An external vendor will provide technical support consultants for the system. Notifications are used to keep track of responses and errors.
	Performance	The subsystem should have a 90 percent uptime and an hour recovery time. The internet gateway should be capable of handling a large amount of traffic. At any given time, there are 500 users online.

	Security	To fulfill their day-to-day activities, the commissioners will have their own back-office admin module/sub system. The system must support Active Directory (AD) Role-based access and Single Sign-On, allowing users to log in once and access multiple systems.
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#### Q2.4

Operational	Executive
Commissioner	Governor (SARB)
Researchers	FSCA's board of directors
Admin assistants	Leaders of the Major Banks
Public User	Minister of Finance

#### Q2.5

Use Case	User Story
Track Complaints	As a consumer I have logged in a complaint and I would like to find out what the progress of the complaint is.
Download articles	As a citizen, I want to learn about fraud so that I can protect money from criminals.
Lodge Complaint	As a consumer I will lodge complaints so that I can get help to lower unlawful bank charges and interest rates.
Download Mobile App	As a consumer I will download an app to learn about the POPI act to lower bank

charges and protect my bank account.

## Q2.6

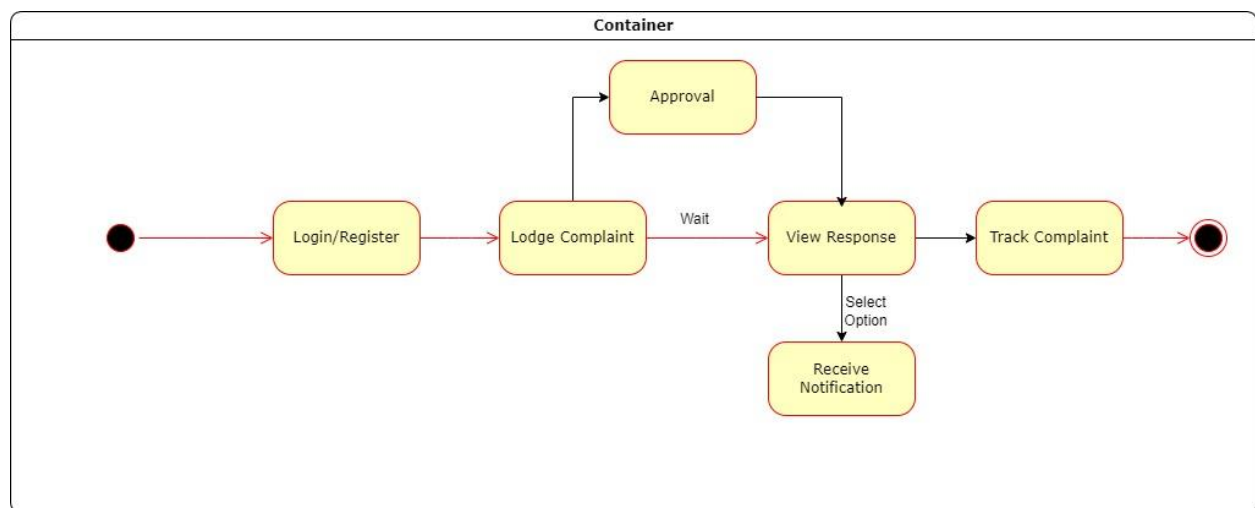
Elementary Business Process

## Question 3

## Q3.1

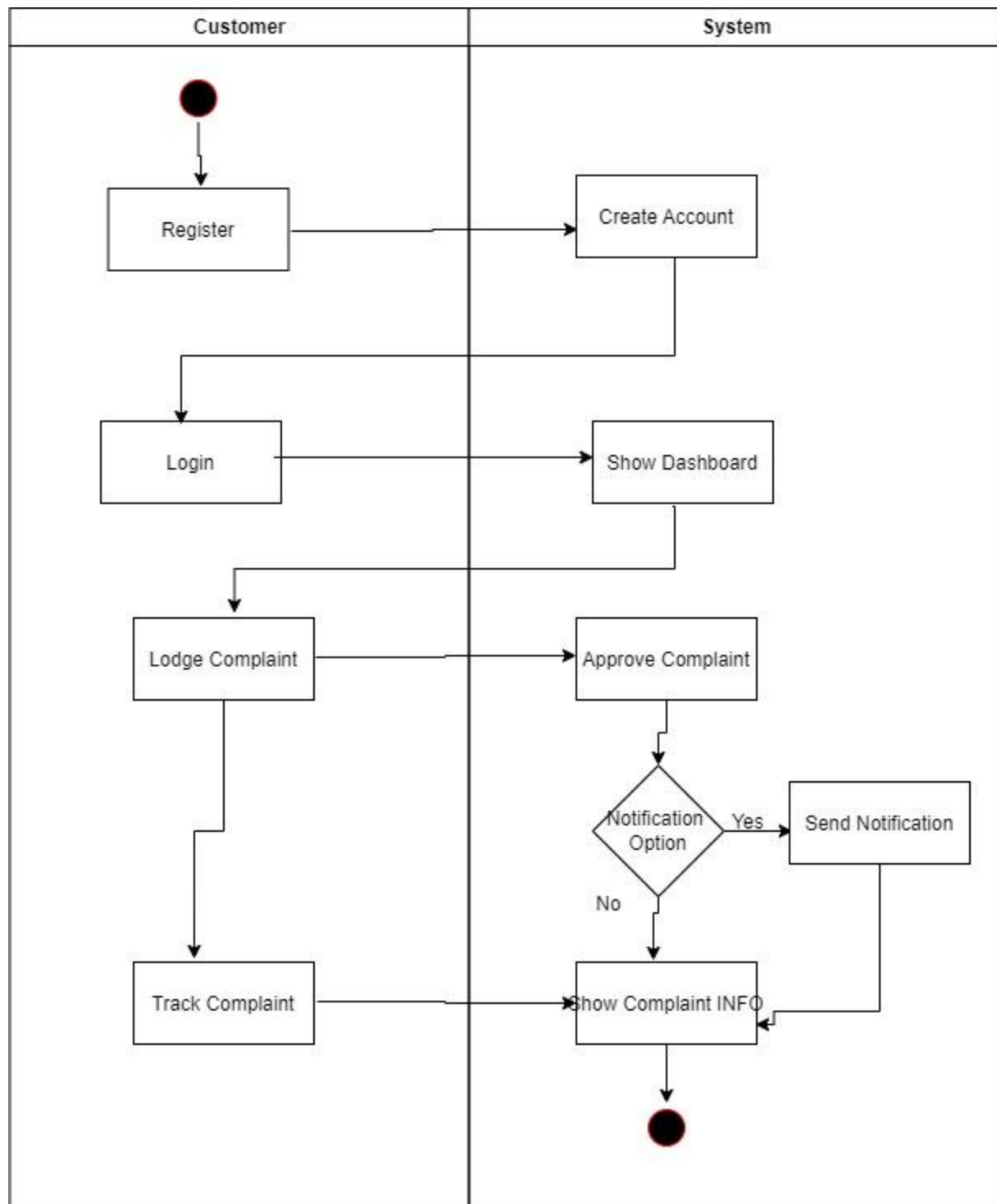
State Machine Diagram - Look at Page 120

Log/register complaints



## Q3.2

Activity Diagram



Question 4

**Security Measures**

To prevent interception attacks, the data will be encrypted using SSL.

The commissioners will have their own private network, which will be inaccessible to the general public. The security of the network can be improved by segregating it.

Using secured doors and cameras, physically secure the devices that are used to log into the system.

After a breach, use the access control list to track down who was responsible.

The system is resilient to old security risks thanks to the use of cutting-edge technologies.

Use the Firewall to refuse requests from devices or countries that have been banned.

Software for password management and security awareness.

## **Reference List**

John, W. 2014;System analysis and design; 7th Edition; Boston USA; Course Technology  
Cengage Learning