



SS ZG653 : Software Architecture

Assignment :1

BITS Pilani

Pilani | Dubai | Goa | Hyderabad

Name: Satish Kumar Sharma

ID Number: 2022MT93327

Email: 2022MT93327@wilp.bits-pilani.ac.in

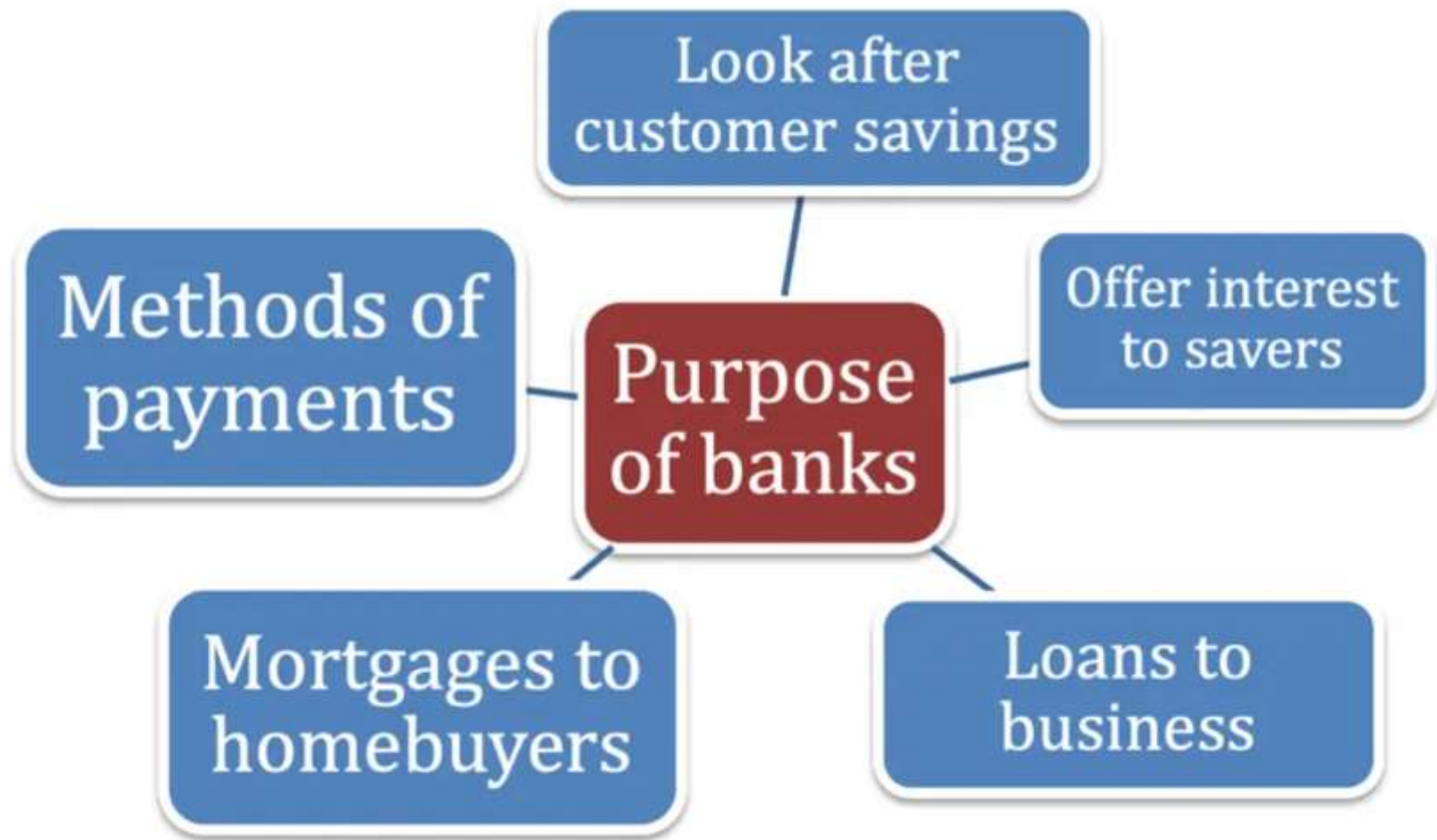
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Purpose of the system

- Offer customers interest on deposits, helping to protect against money losing value against inflation.
- Lending money to firms, customers and homebuyers.
- Offering financial advice and related financial services, such as insurance
- Instant access to cash (hole in the wall cash machines)
- Bank lending is profitable for banks and can incur significant costs for the firm.
- Offer customers to Open account (Saving and Current Account)
- Offer customers to Deposits and Fund Transfer
- Offer customers to Withdrawal Money
- Keep money safe for customers

Purpose of the system Visual



Key Requirements : Functional & Non-Functional



Functional requirements	Non Functional requirements
<ul style="list-style-type: none">• Login• Validation• Get balance information• Withdrawal of money• Transfer Money• Customer info• Beneficiary• Administrative Control• Account Information• View statements transaction• Open Saving or Current Account	<ul style="list-style-type: none">• Performance• Operation and Maintenance• Backup• Security• Automatic & Elastic Scaling• Reliability

Architecturally Significant Requirements (ASR)

1. The system must respond within 30 seconds.
2. The system must encrypt all network traffic.
3. The system should available 24/7 to Business.
4. New feature required to apply on existing system.
5. The System must be tested like Usability, Security, Scalability testing... etc.
6. The system must record every modification to customer records for audit purposes.
7. The Banking system must fund transfer and validated account holders with sufficient cleared funds.

Utility tree of Architecturally Significant Requirements (ASR)

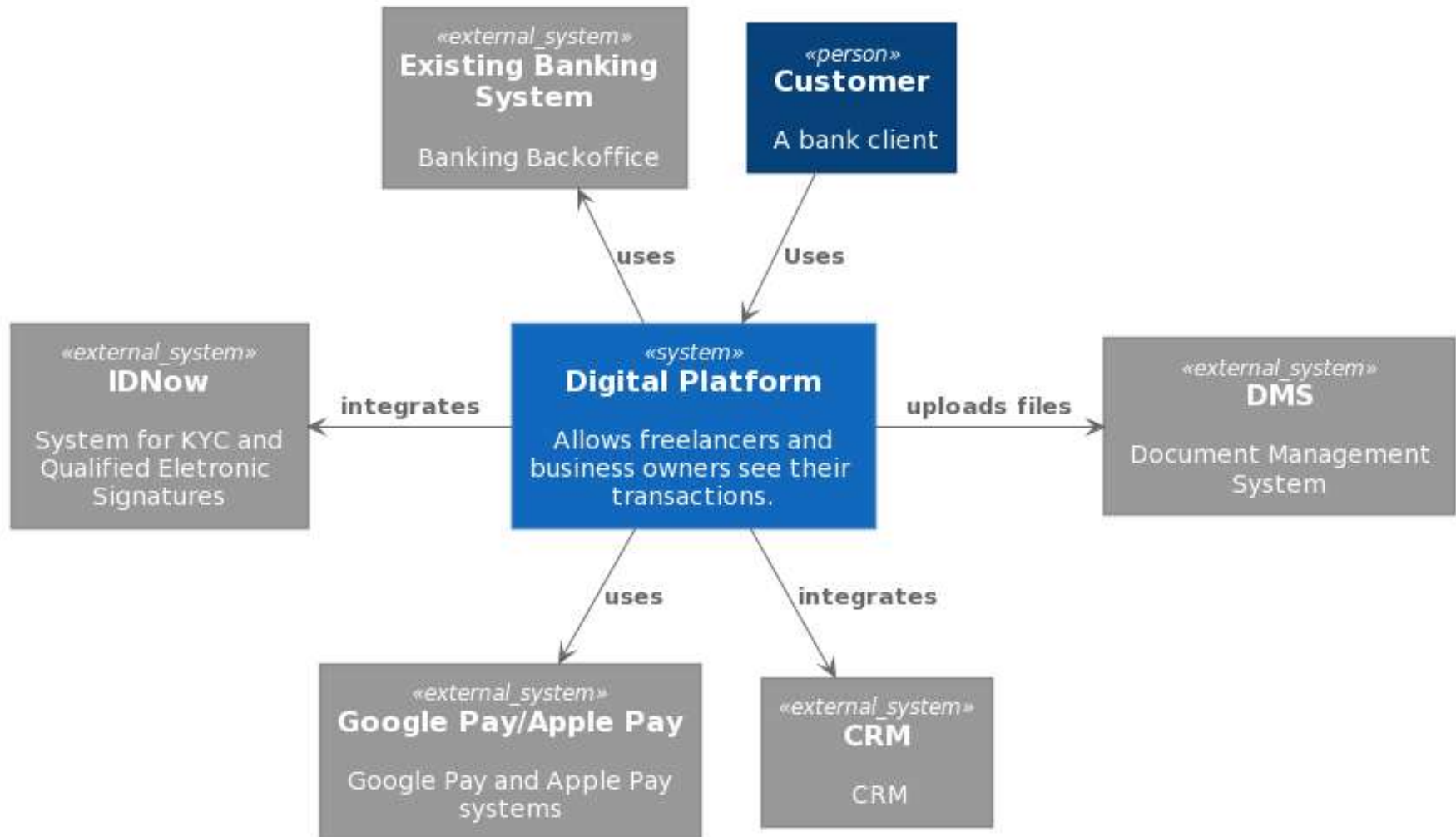
Quality Attribute	Requirement	Question	Response	Impact	Measure
Performance	The system must respond within 30 seconds.	Is system response within time?	Response<100ms	Medium	Yes
Security	The system must encrypt all network traffic.	Is system encrypt data?	Yes, all data encrypted.	High	Yes
Availability	The system should be available 24/7. Business.	Is down time less than 99.999%?	Yes.	High	Yes
Modifiability	New feature required to apply on existing system.	Is new changes apply?	Yes, Easy to apply new changes	Low	No
Testability	The System must be tested like Usability, Security, Scalability testing..etc.	Is system follow all standard?	Yes, it's tested with all standard.	High	Yes

Tactics used to achieve the top 5 ASRs

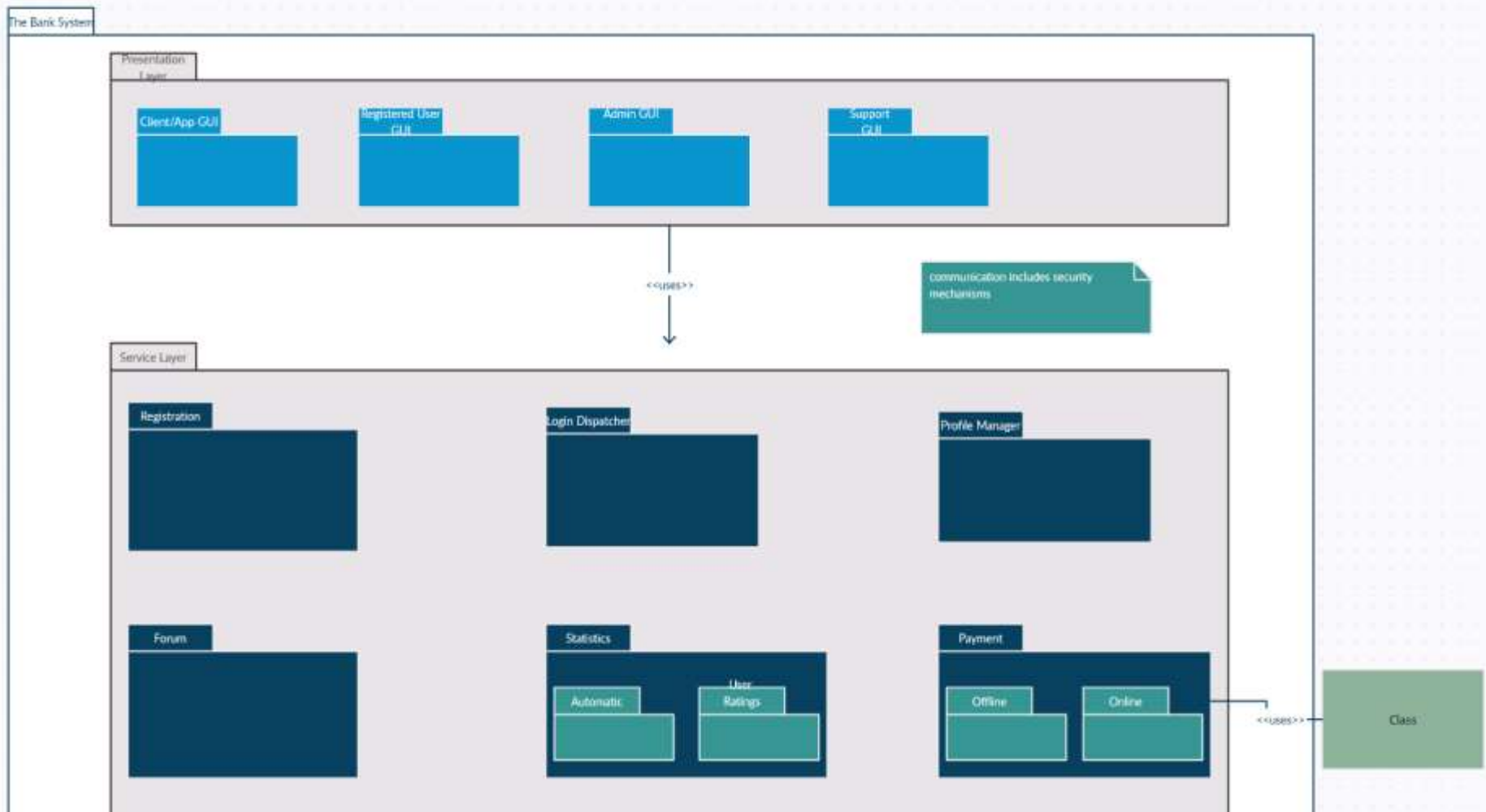


Quality Attribute	Tactics		
Performance	Control resource demand	Limit event response	Increase resource Efficiency
	Manages Resource	Increase resource	Schedule Resources
Security	Detect Attacks	Detect Intrusion	Verify Message Integrity
	Resist and React to Attacks	Identify Actors, Revoke Access	Encrypt Data, Lock computer
Availability	Detect Faults	Monitor system	Self testing
	Recover from faults	Preparation and Repair	Exception Handling
Modifiability	Reduce size of a Modules	Split Modules	Reduce coupling
Testability	Control and Observe System State	Sandbox, record	Playback and

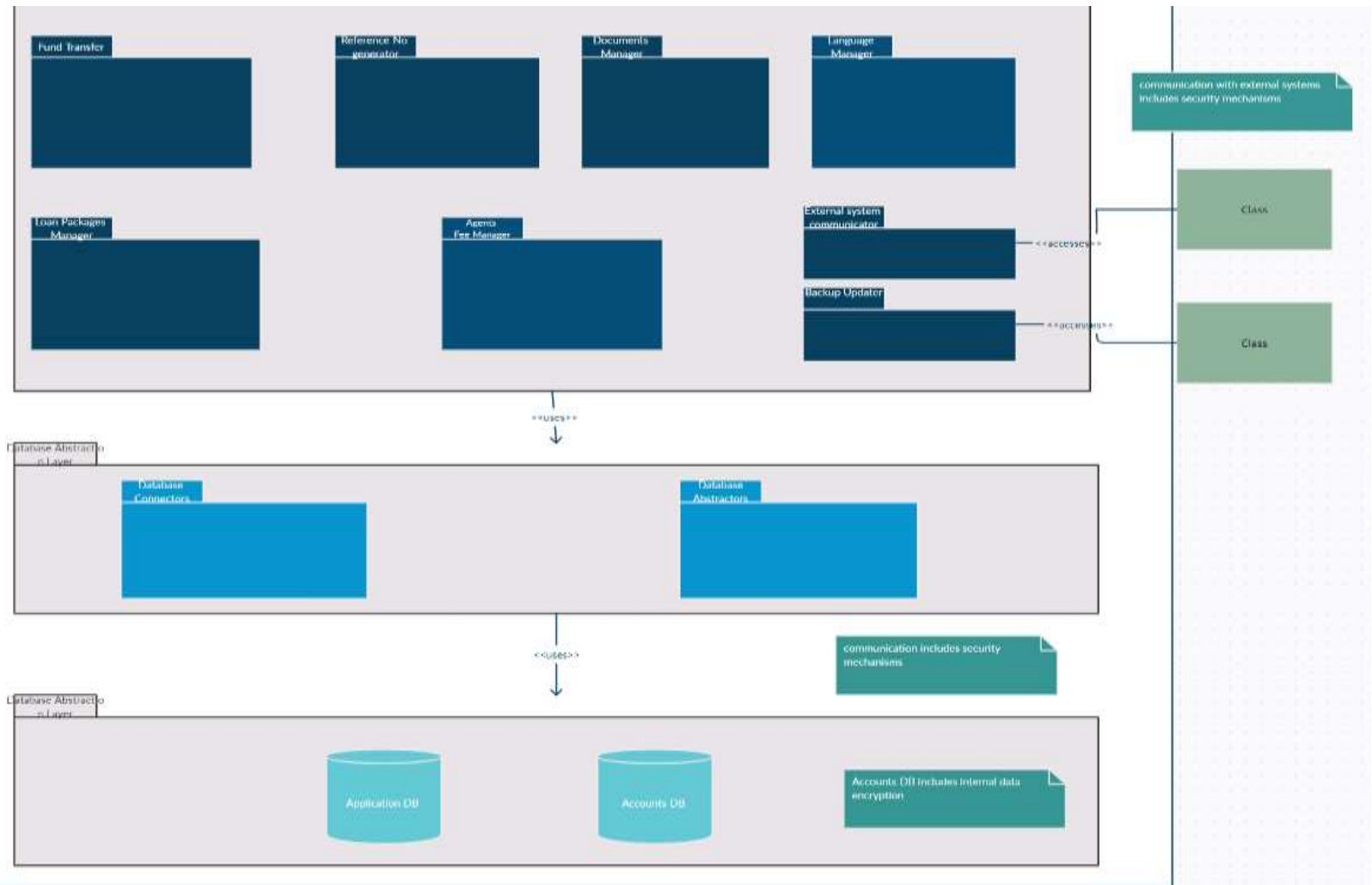
Software Architecture diagram – Context diagram



Software Architecture diagram –Module decomposition – Part 1

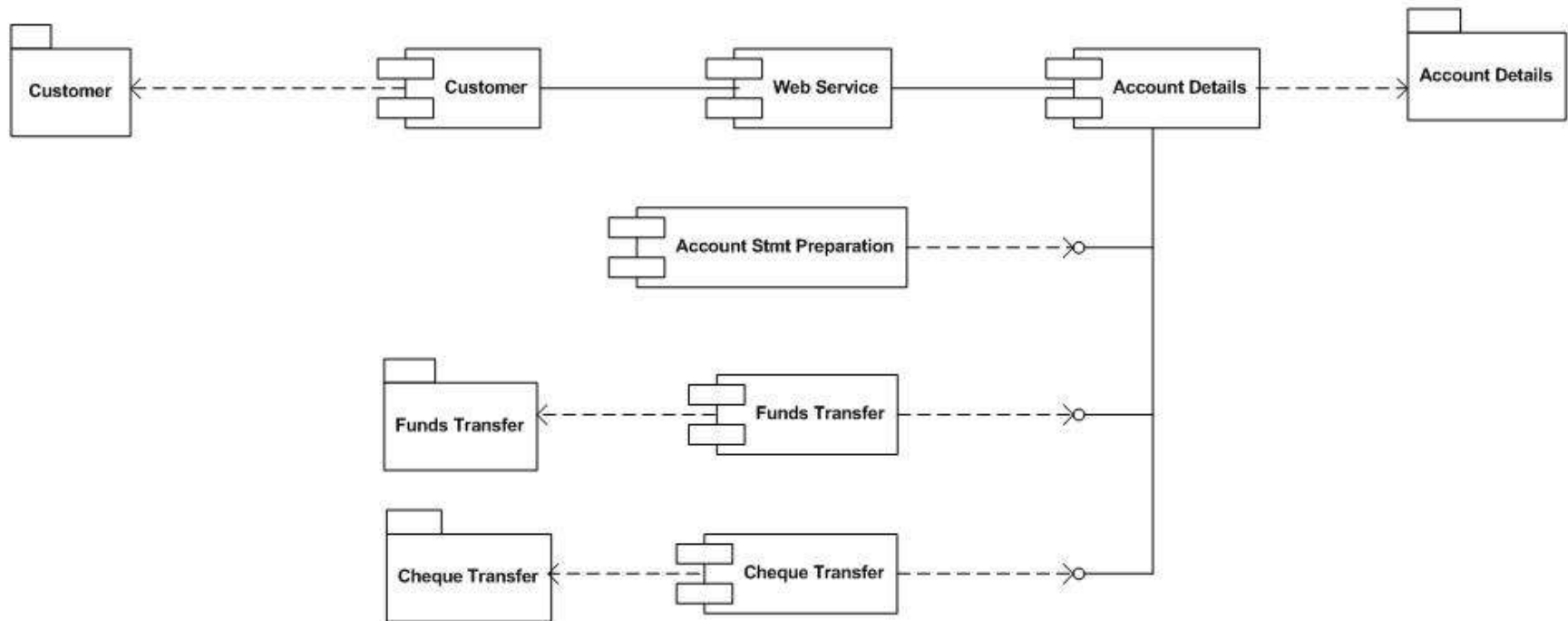


Part 2



Software Architecture diagram – Component & Connection diagram

Component diagram for Internet banking

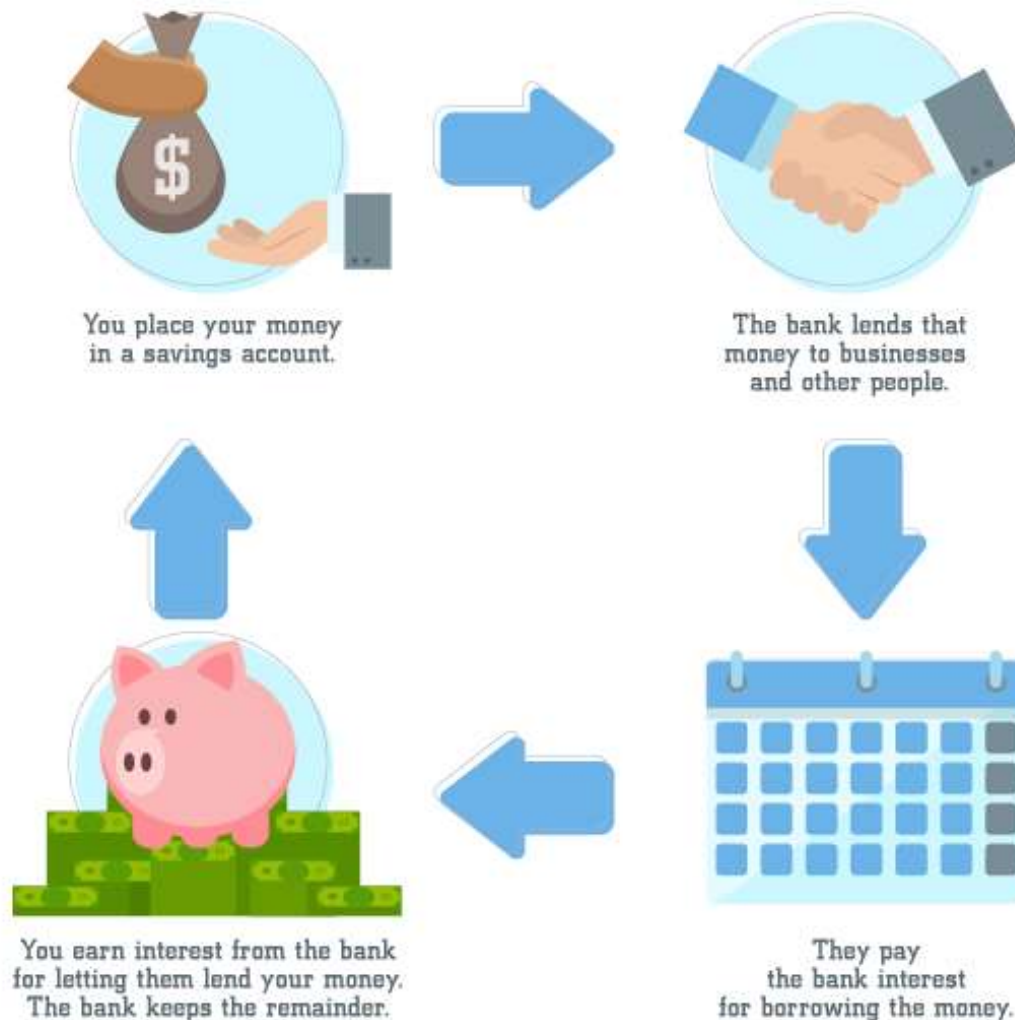




Description of how the system works

- A bank is a financial institution which is involved in borrowing and lending money. Banks take customer deposits in return for paying customers an annual interest payment. The bank then uses the majority of these deposits to lend to other customers for a variety of loans. The difference between the two interest rates is effectively the profit margin for banks. Banks play an important role in the economy for offering a service for people wishing to save. Banks also play an important role in offering finance to businesses who wish to invest and expand. These loans and business investment are important for enabling economic growth.

Description of how the system works Diagram



Key learnings

Personal Learnings

- Gather and find the goal of System.
- Find Architecturally Significant Requirements (ASR)?
- Prepare Utility Tree.
- Create UML Component Diagram.
- Create context and deployment diagram.

Learning to organization

Challenges in building and managing high scalable web and mobile applications system.

Thank You

Name: Satish Kumar Sharma
ID Number: 2022MT93327