Team:
Code Beatle

Problem Statement:

Automated Cheque Processing

Team Details

Team Leader

Sushant
Academic Year : 2nd

Member 1

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Academic Year : 4th

Member 2

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Academic Year : 4th

Member 3

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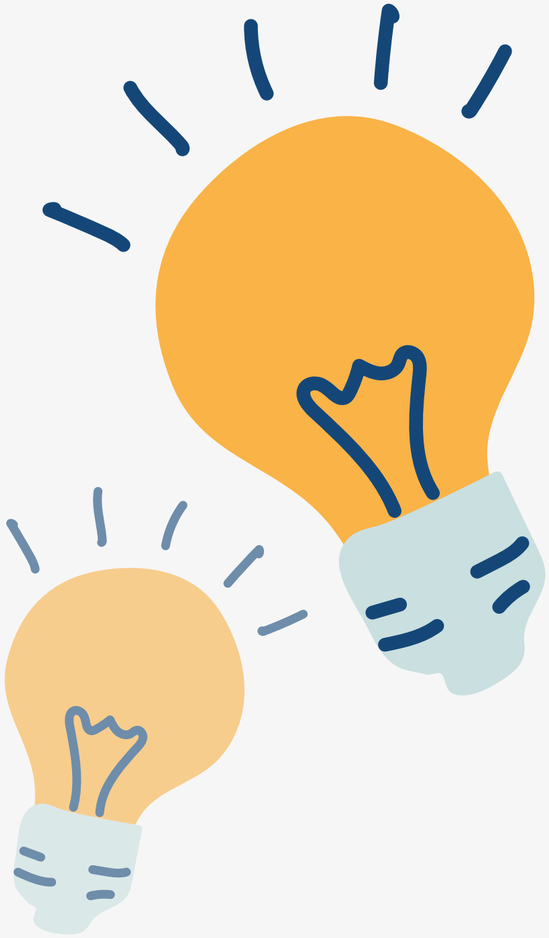
WHY DID YOU DECIDE TO SOLVE THIS PROBLEM STATEMENT?



- A cheque is a payment instrument that requires high-cost processing in banks because it involves significant manual work. The use of paper checks is about 11 billion sheets because a large portion of the population still relies on these physical check transactions.
- Nowadays, consumers want to clear their checks without waiting for hours or days, which is why they prefer digital transactions because they are more convenient and fast-paced.
- The traditional process is cumbersome and takes a couple of days for the actual transfer of money which involves verification by the intermediaries. This leads to high time and costs.

Which user /advertiser segment would be early adopter of your product & why?

- A variety of customers/users can benefit from automated cheque processing, including firms that accept cheques for payment in exchange for goods, major corporations, etc.

- Shops that exchange goods and pay each another on a daily basis will benefit most from this technology because they will be able to clear cheques using their smartphones.

WHAT ARE THE ALTERNATIVES/COMPETITIVE PRODUCTS FOR THE PROBLEM YOU ARE SOLVING?

- Some solutions exist that read the information on the cheque, which includes the courtesy amount (numeric), legal amount (textual), signature, and particularly written language such as English, French, or Korean for cheque processing automation or auxiliary verification, then verifies a cheque by identifying and examining the account holder’s signature. The signature extraction goes through image acquisition, grayscale image translation, and binary image extraction, which is localized and segmented.
- There was a research conducted In Malaysia, to develop the Bank Cheque Recognition System by using the neural network, however, researchers were not satisfied with the performance obtained

Solution

1. We will be creating an app, in which first of all user have to create their account along with their bank details.

2. User will scan the cheque and click on submit to upload the cheque. Then the system will extract payee's name, amount, account number, IFSC Code, date, cheque number and signature.

3. Since the cheque id and account number are present on a bank cheque as a MICR number, therefore, they can be extracted using optical character recognition (OCR).

4. Payee Name, amount and date are hand written, so that will be extracted by using Connectionist Temporal Classification(CTC) The amount is hashed using SHA 256 which stores the hashed value of function(Amount) and is eventually stored in the database.

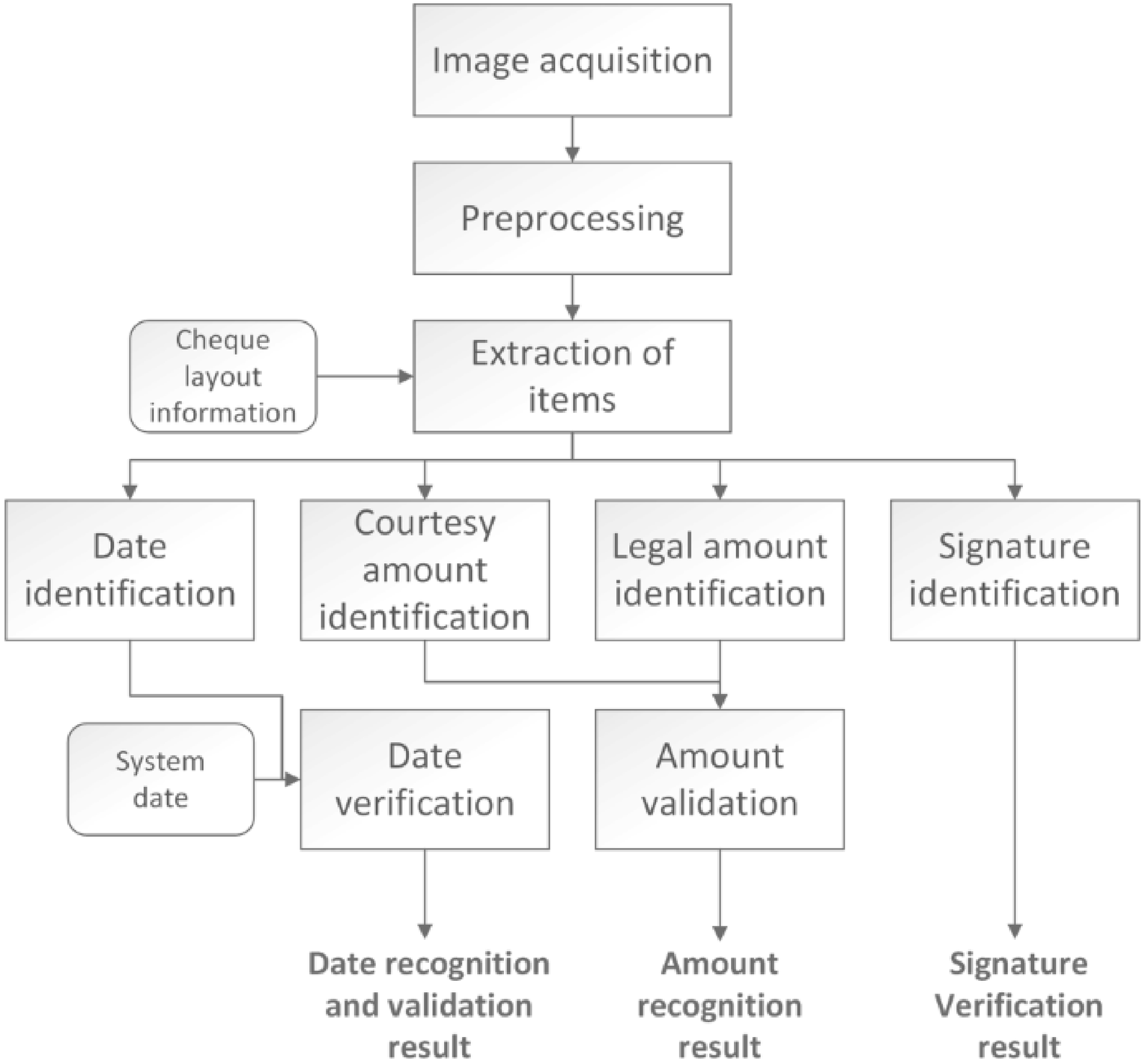
5. The signature is extracted and verified with the original signature of the account holder stored in the database of the drawer bank. If the signature is not matched, the system displays an error message.

6. If the signature is matched, then all the extracted information will be sent to database or server.

7. Once all the process is done, the user who has scanned the cheque will get two options either to transfer that amount into their bank account or to cash out that amount.

8. If the user chooses the "Transfer to bank account" option, then the amount will be directly transferred to their bank account and a notification will be sent to both who gave the cheque and who got the cheque. And if the user chooses the cash option, they can generate a key that will be valid for 15 minutes, and they can visit any nearest ATM and can enter that pin, to take their cash, and a notification will be sent to both who gave the cheque and who got the cheque.

ARCHITECTURE



HOW IS YOUR SOLUTION BETTER THAN ALTERNATIVES AND HOW DO YOU PLAN TO BUILD ADOPTION?

- Our Solution has a mobile application and web application for the interface.
- Banks can view the status of checks that are in the process, checks that are already being processed, and checks that have been cashed.
- The user can scan the cheque anytime, anywhere. They don't have to go to any bank.
- Detecting potential fraud sooner.
- Making funds available faster.
- Allowing quicker access to the digital image of their processed cheques.

AZURE TOOLS OR RESOURCES

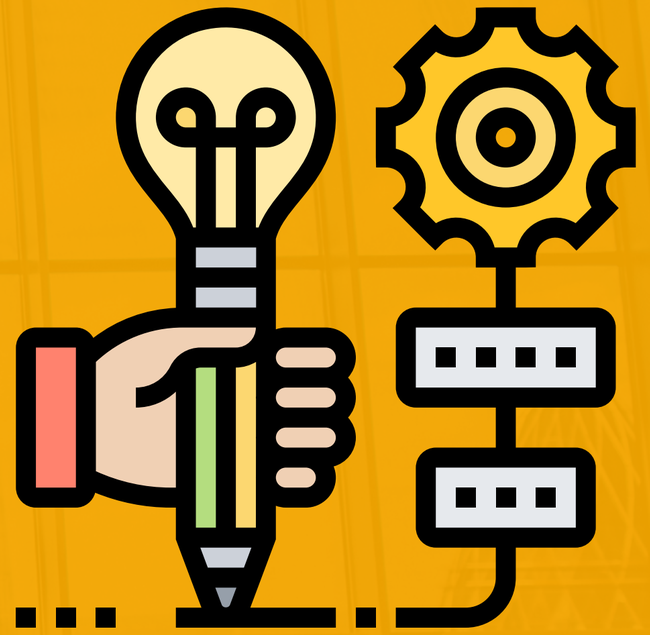
- Azure tools or resources which are likely to be used by you for the prototype, if your idea gets selected Web App for Containers
- Easily deploy and run containerized applications that scale with your business.
- Use a fully-managed platform to perform infrastructure maintenance .
- Take advantage of built-in auto scaling and load balancing .
- Streamline CI/CD with Docker Hub, Azure Container Registry, and GitHub

SCALABLE

As the whole solution is software-based, so updates and new features can be easily added on demand.

RELEVANCE

Processing of large number of cheques on daily basis manually can easily result in issues either in signature verification or wrong entry in the system. The whole automated processing system can help in increasing accuracy.



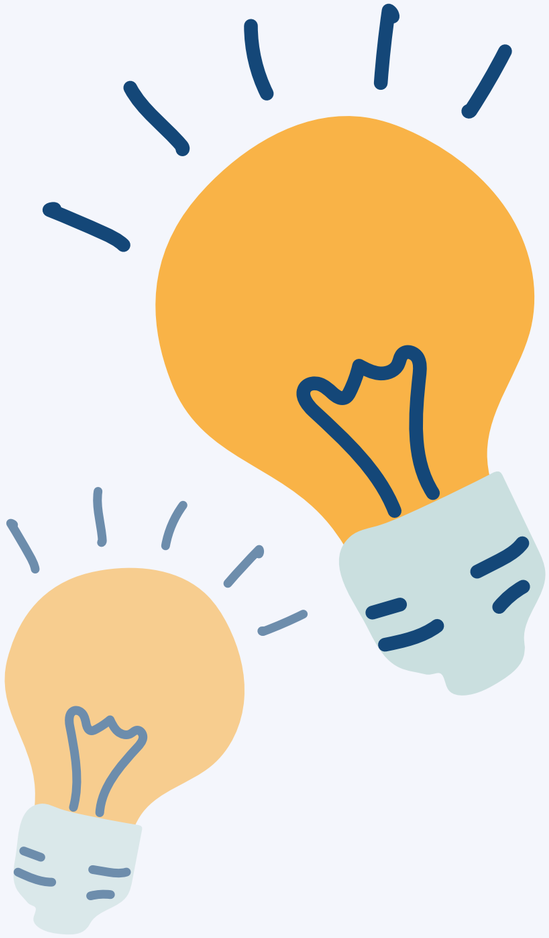
IMPACT

The primary impact of our solution is to reduce load of cheques processing on banks/business employees and to provide convenient and fast way of handling the cheques to customers.

FEASIBILITY

No involvement of complex hardware and use of software make it feasible

HOW FAR IT CAN GO?



- Since the solution is software based, so the updates and changes can be done on demand.
- We will propose and implement the algorithm to convert amount number on cheque into words to verify the details on cheque, and reduce cheque bounce conditions.
- We will apply OCR technique to recognize the machine printing digits and will achieve 95% accurate matching.

Thank you!