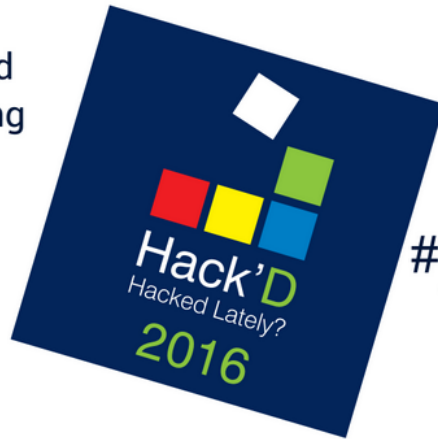


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“ FINANCIAL INCLUSION ”
*- Personalized Credit
Score*

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SHUBHAM VERMA
UTSAB DUTTA
SATHISH. V**

Problem Statement

Personalized Credit Score

Introduction

A credit score is a number ranging from 300-850 that represents a person's creditworthiness. The higher the number, the more credit worthy a person is deemed to be. It is primarily used by banks and credit card companies to evaluate the potential risk posed by lending money to borrowers.

Problems

- Credit score is calculated based on data shared by banks reflecting timely payment of an individual's loans and credit cards dues. People who have no access to formal channels of credit are financially excluded due to low/nil credit score. According to the World Bank, less than 1 In 10 people in low and middle income countries around the world are on file in public credit registries
- Alternative payment data of contractual agreements (such as utility bills, cheque bounces, insurance premiums, rentals etc.) are not taken into consideration in the traditional credit score calculations to measure and profile financial discipline
- People who have a credit score and have credit relationships with banks have a skewed picture of their financial discipline since alternate payments are not considered in current credit scoring models
- Consumers do not have ready access to their credit score nor is it freely available. As a result, most consumers never check their credit score or check them once in a blue moon. Hence credit scoring system today does not encourage greater personal financial discipline in a consumer's daily life
- Consumers have very little awareness as to how they can improve their credit score or why their credit score could drop as a result of financial indiscipline. The credit score currently indicates a consumer's credit worthiness at a particular point in time but does not show how the score has improved over time
- There is no incentive for consumers to build their credit score since its utility is limited to loan applications and they do not receive other benefits for possessing a higher credit score
- Financial Institutions cannot proactively identify consumers who are likely to default on their loans
- The reputation of consumers and the connections they have in society play no role in how their credit score is derived.
- Adding qualitative measures like depth and breadth of social connections and alternate payment data could help refine algorithms used to derive credit scores
- Self-help groups and social enterprises with no formal banking relationships currently do not have a credit profile.

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1. iDEAS

- ◆ Prediction of the future credit score
- ◆ Benefits of the current credit score
- ◆ Viewing the current credit score
- ◆ Live News feed of the increment & decrement of the credit score
 - How much score it has been reduced/increased
 - Reasons for reduction/increment of score
 - Steps that can be taken to increase the credit score! (only for user who posses less credit score)
- ◆ Documentation: Awareness of credit score's importance
- ◆ Documentation: For a particular range, corresponding benefits you will be provided

2. Solution

2.1 How Credit Score Calculated:

- ✓ **10% - General Usages (includes daily usages of a consumer)**
 - This will contribute to the credit score when a user is capable of spending more money on an average, he may be capable of taking creditworthiness.
- ✓ **30% - Payment History:**
 1. **Governmental Billing (Utility Bills, Insurance Premium, Electricity Bill, Water Bill, Sewage Bills, etc)**
 2. **Non – Governmental Billing (Rental, etc)**
 3. **Loan & Credit card payment**
 - 35% of credit score is calculated based on the borrower's payment history, making the repayment of past debt the most important factor in calculating credit scores.
 - Utility bill payments will be given the least priority in the calculation of credit score. Among bill payments government bill repayments will be given more priority.
- ✓ **25% - Credit Utilization**
 - 30% of the total credit score is based on a borrower's credit utilization that is, the percentage of available credit that has been borrowed.
 - As the bill payments and etc are brought into the picture, this increase the amount of the credit of the user. But while calculating this 30% of the credit score calculation, government bill will be given least priority as most of it is daily need of an individual.

✓ **15% - Length of Credit History**

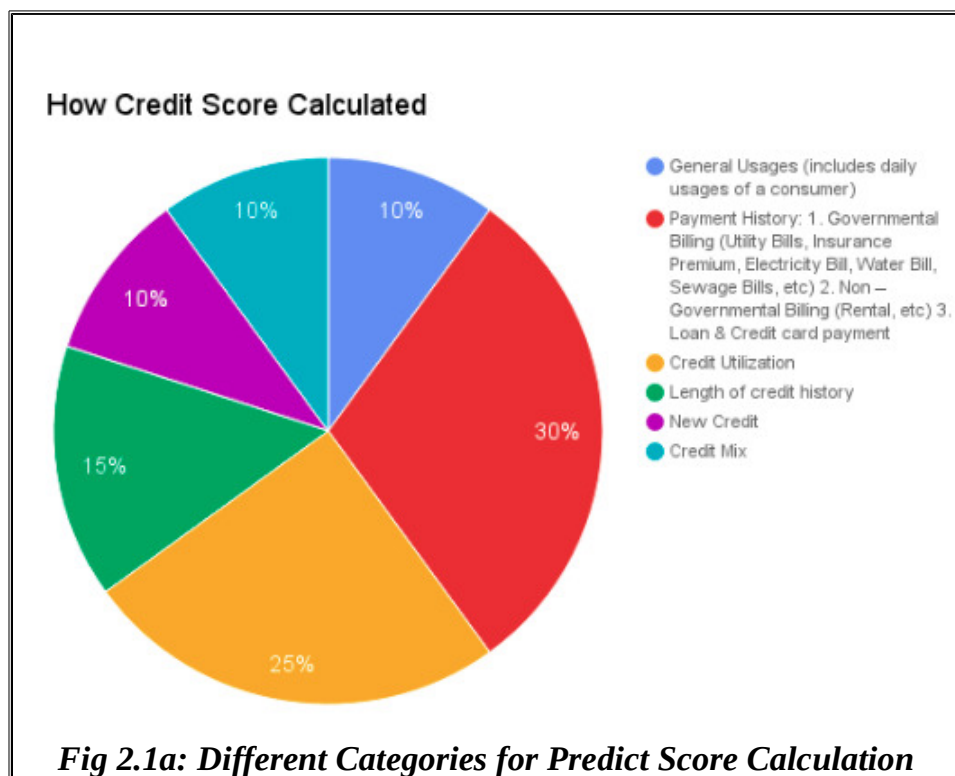
- 15% of the total credit score is based on the length of time each account has been open and the length of time since the account's most recent action.
- As the bill payments are treated as credit history, this will keep the individual credit history always active. This long active history will keep the individual's credit score atleast constant or increasing.

✓ **10% - New Credit**

- An individual new to the credit might get his credit score started but opening too much credit lines can have a negative impact on his credit score as it shows the individual is in financial crisis.
- Taking a new service may it be governmental or non-governmental, if it is of contractual agreement, then it will be reflected as new credit which will help the user to not just for the service but also for the credit score.

✓ **10% - Credit Mix**

- Repaying a variety of debt indicates the borrower can handle all sorts of credit.
- Till now only loans and credit cards are taken as a tyoe of credits. But after including contractual agreement into the picture ,it can be shown as a new credit type, which will help the individual in increasing its credit score.



2.2 General Usages:

- Initially, the shopkeeper should verify his shop details to the **CSD (Credit Score Department)**.

- In-turn, the **CSD** will provide access in 2 ways

- Web Portal**, where shopkeeper can generate their bill by providing customer's Aadhar no.
- Billing book**, where shopkeeper will provide offline billing of the products bought by customer, then customer can update using the unique number of the bill to the **CSD** database using the app (or) get to the nearby office and ask them to update the bill.

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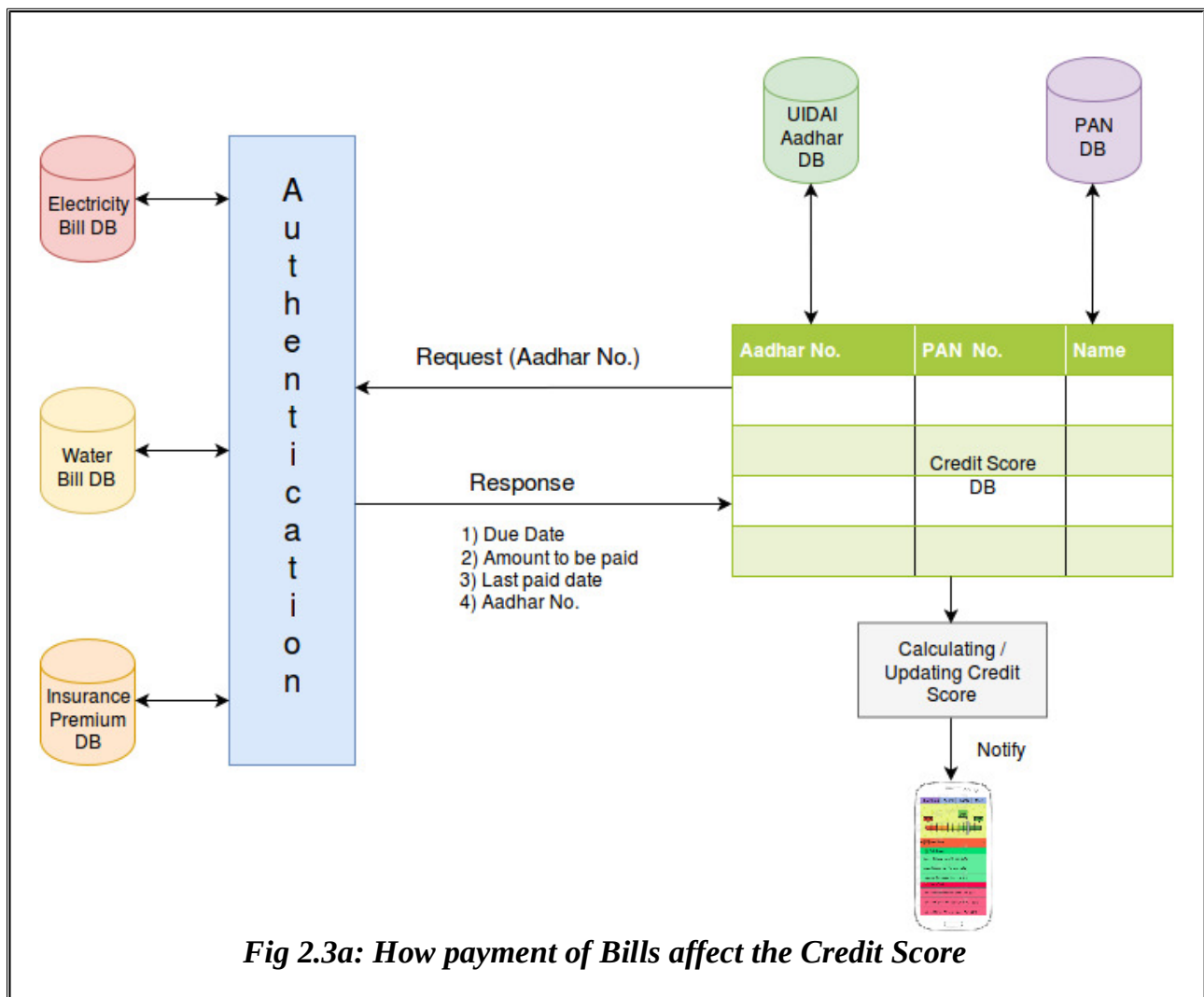
Fig 2.2a: Offline Receipt

- In this way, **shopkeeper & customer's offline money transactions** will be documented in the database in order to calculate the credit score. **(If this is made mandatory, then black money may reduce to a considerable extent)**

2.3 Governmental Billing:

- All consumers should provide their **AADHAR NO** to other Billing bodies such as Electricity dept, Insurance dept, etc...
- Credit Score Database is authenticated to request with AADHAR NO to all other Billing body database, and thereby getting response with following information
 - AADHAR NO (requested AADHAR NO)
 - Due Date
 - Last paid date
 - Amount Remaining
- Credit score database are authenticated to update/fetch information with the **IT department & UIDAI department** for calculating and updating the credit score.

[Next Page shows Proposed Architecture in process of calculating the credit score]



2.4 Non – Governmental Billing:

- Every **owner** should **verify** his document before giving his house for rent **once in the life** of his house.
- **After verification** we will assign some kind of **id** to the owner which he will share with his tenant.
- We will provide a **service** in our App to pay rent to the owner, while paying tenant need to specify his **owner id** shared by his owner.
- By paying this way tenant will get some **points** every month based on how **timely he paid and how much he paid**.
- Based on that point he will get some **credit value added into his credit score**, as well as he can use his point to show his renter-worthiness so that he can find houses very easily next time.

3. Implementation

3.1 Registration/Login:

- Registration: We have **2 options**:
 - ✓ **Are you a citizen?** (asked for AADHAR NO & PAN NO)
 - ✓ **Are you an organization?** (asked for PAN NO)
- **Verification** through Registered Phone No, Email with Aadhar card.
- After Verification of Email, Default Username & Passkey will be sent to the verified email id, later user can change their password.
- **User will be logged out automatically**, everytime when comes out of the app/ idle for a specific amount of time.
- Registered User can login with the username and password.

3.2 Track Credit Score:

- User can view their **current credit score**.
- **Live News Feed**: Increase/Decrease in Credit score by the following info:
 - ✓ How much is the affected value in the credit score (Eg: Decreased by 2)
 - ✓ Reason for which it has been affected

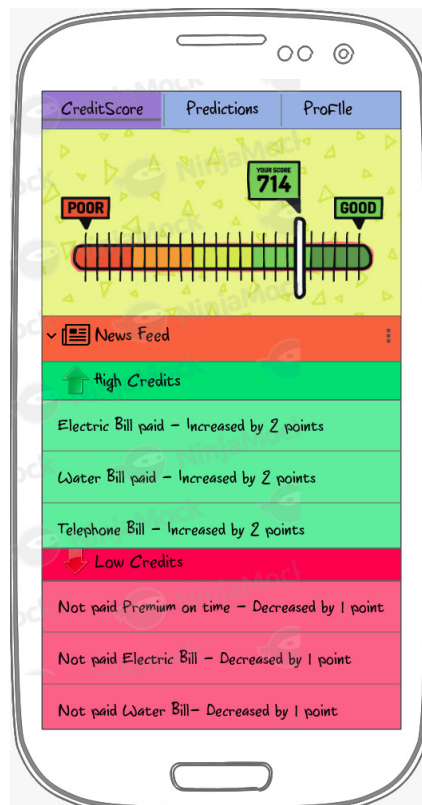


Fig3.1a: To track Credit Score

3.3 Benefits:

- Select a particular Range of credit scores/ user current credit score.
- Then it will display the benefits that the user is liable to other resources.
- Loan Benefits: How much amount of Loan that the user may get benefited through,
 - ✓ Personal Loan
 - ✓ Vehicle Loan
 - ✓ Mortgage Loan, etc...
- Credit Card Benefits
 - ✓ How much amount of credit that the user can get it through credit card
 - ✓ How much interest you have to pay for the credit card
- Rewards & cashback

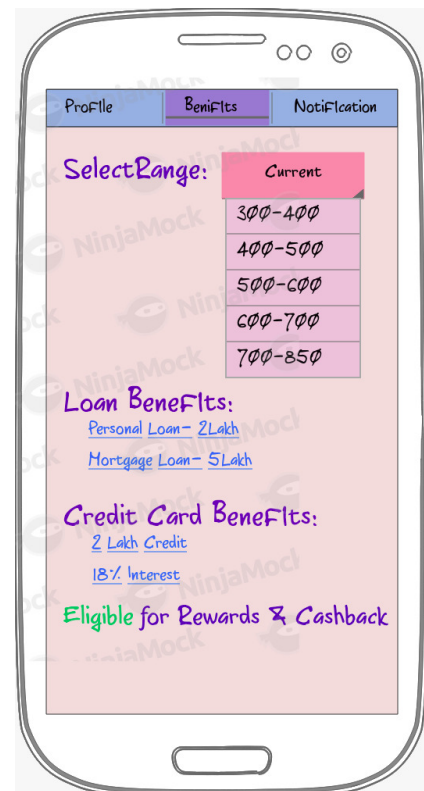


Fig 3.2a: Checking User Benefits

3.4 Prediction:

- User can use this feature, in order to judge their future credit score, which will help them to improve in what things they need to improve themselves and plan well ahead according to improve their credit score.

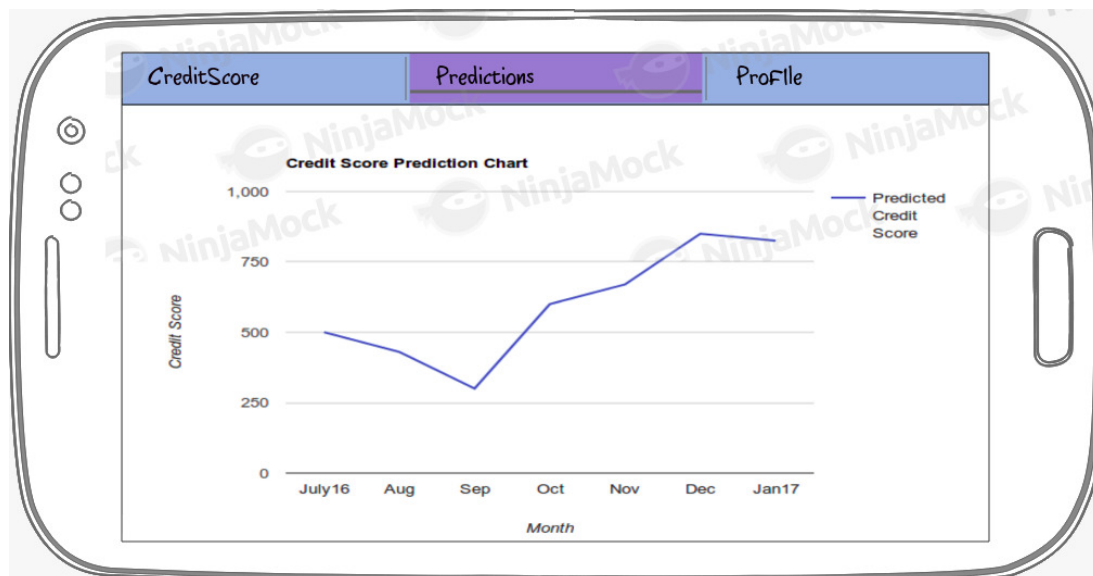


Fig 3.3a: Future Credit Score Prediction

- More to this figure shown, user also will be given some advice based on the prediction made.

[NOTE: Technique used in prediction of calculating the future credit score is revealed during the time of **HACK'D CONTEST**]

3.5 Other Features:

- **Profile:** Here user can view or change their username & password.
- **Notification:** User will receive a push up notification for payment before due date if applicable or any general awareness that needs to be intimated to the user.



Fig 3.4a: Histroy of Push-up Notification



Fig 3.4b: User Profile

4. Future Enhancements:

- Using the user's PAN NO, all account details of different banks pertaining to that user can be tracked using this app
- Offline payments for Non – Governmental transaction, for those people who feel insecure to make online transactions

5. Tools Required

1. Android Studio
2. Android SDK
3. Android Emulator with HAXM installed
4. A Virtual Device in Android Emulator with the Marshmallow version
(*to view the android application*)
5. Filezilla (*to access server with FTP access*)
6. Git (*to have a common code base*)
7. Sublime Text editor (*to document*)
8. Mozilla or Chrome (*for internet access*)
9. XAMP / Online Free Web Hosting with CPanel & MySQL Database
(Eg. www.000webhost.com)
10. Postman (*for JSON response testing*)