**PREDICTING PERSONAL LOAN APPROVAL USING MACHINE LEARNING**

**SYNOPSIS**

* The project entitled **"Predicting Personal Loan Approval Using Machine Learning"** presented here describes about the loan management of the bank using computers.
* Taking loans has become very common all over the world, and it is not always a matter of financial crises, but convenience too. Personal loan is the most generic or basic form of all loan options. It offers numerous alternatives that can take care of virtually every possible financial requirement. Its flexibility has made it the most favoured and loan type in the world of credit. Lenders are coming up with customised loan options to target maximum possible borrowers. As a result, people are conveniently availing them even for their day-to-day requirements.
* The personal loan option offers diverse choices that are usually classified under three broad sub-headings - secured, unsecured and bad credit.
* Secured [personal loan](javascript:void(0)) is the best option when one needs to borrow a large amount of money. The borrower can easily avail this loan type in exchange of collateral. As collateral takes care of the risks involved, the lender facilitates the borrower with comparatively lower interest rate and flexible repayment options.
* Unsecured personal loan is the best option when one needs an instant financial solution and is not willing or is not in a position to offer collateral. The borrower can easily and quickly avail this option, as it does not require stringent credit checks and conventional paperwork. However, as it is a risky preposition for the lender, he usually charges higher interest rates with fixed repayment options.
* Bad credit (high-risk) personal loan is the best option when one is stuck in a bad credit situation. Specially designed for people with blotted credit history, this personal loan option gives them the opportunity to get out of the financial crisis and improve their credit history too, but at higher interest rate and a very stringent repayment plan.
* Over the years, the credit market has undergone a complete change. Borrowers are no longer at the mercy of a few available lenders. Now, the credit market provides numerous options, both in terms of loans and lenders. Hence, one should not opt for a loan without a proper survey. The modern Internet technology has made this task very easy. In fact, some of the lowest rates can be found online, as the overheads of online creditors are much lower. So, do proper research, evaluate as per your need and then avail.

**1.INTRODUCTION**

* 1. **OVERVIEW:**
* It doesn’t matter how much we’d like to think we are heading toward having a cashless society: the truth is that there are times when nothing beats having cash in hand.
* For whatever reason you need money; one of the fastest ways to get the cash you need is to take out a personal loan from your friendly neighbourhood bank.
* Whilst many people know about personal loans – that is, they know it’s a way to get money – very few realise what they are signing up for when they sign the dotted line.
* So before you go signing your life and income away take a quick look at our simplified, no-holds-barred look at personal loans.

**What is a personal loan?**

* Banks are in the business of lending for big ticket items, such as houses and cars. With this kind of borrowing the banks use the asset (the house or car) as a ‘guarantee’ for repayment. So if you don’t repay, they will take possession of your property.
* But what if you just need money – not for any big purchase but lots of little ones? Or an emergency? Maybe you need cash for a graduation or wedding. Unfortunately, you can’t put your degree or marriage certificate down as security.
* This is where personal loans can be useful. With a personal loan you can pretty much do anything you like with the money lent to you. But because the bank does not have an asset to secure your repayment promise personal loans are harder to get approved, and often come with high interest rates.
* The bank is taking on a bigger risk by lending to you with no real guarantee of repayment, so as with any high-risk venture, they expect to be paid handsomely for it. Wouldn’t you also want a higher dividend for a riskier investment portfolio?
* Most often personal loan interest rates are fixed and charged every year on the full amount you borrowed and not on a reducing balance like a home loan. This means that no matter how much of your loan you repay – even in the final year of payment – you will be paying the same amount of interest you did on day one.
* Bank Negara has set the maximum number of years for repayment at 10 years, though the usual amount of time banks will give you is between 7-8 years.

**Where do you get a personal loan?**

* The first place you would look would of course be a commercial bank, be it local or foreign. The commercial banks are the preferred route for most people as the rates offered are lower than alternative lenders, like loan sharks and other money-lenders.
* Banks are also licensed institutions regulated by Bank Negara and thus abide by government policy and lending laws. This applies both to conventional and syariah-compliant personal loans, so it’s the same if you apply for a [CIMB Bank personal loan](https://ringgitplus.com/en/personal-loan/CIMB-Xpress-Cash-Financing-i.html) or a [RHB Islamic personal loan](https://ringgitplus.com/en/personal-loan/RHB-Personal-Financing-i-Civil-Sector.html).
* Of course, a bank’s requirements for loan approval will be stringent and many checks will have to be done before you get your hands on some money.
* Banks calculate all your payments to ensure you can afford them. If they have denied you a loan on the basis that your income is insufficient; it probably is just so.

**The Good:**

* You can get a personal loan for as low as RM2,000 up to RM250,000 depending on your income level.
* In most cases, the interest rate will remain the same throughout the life of the loan.
* Many banks offer a better interest rate if you have a good credit score.
* It is easy to apply for a personal loan; especially from banks you are already have an account with.

**The Bad:**

* The interest rates can be high. The larger the amount you borrow and the longer you take to repay it, the more you have to pay in interest.
* There will be extra costs such as: Processing/documentation fees/stamp duties as well as early settlement fees/penalties if you pay off your loan quickly.
* You do not save any money by paying more to the personal loan unless you opt to reduce the tenure of your loan from the outset.

**1.2 PURPOSE:**

* A personal loan means exactly that – it can be used for any personal need and there is no need to explain officially why it is being taken. Since there is no end-use tied to it, your eligibility does not depend on the purpose of the loan. This also means that you do not officially need to write down the reason why you are applying for a personal loan and how you intend to use it. However, you may be asked by your loan officer the purpose of taking a loan, since a lender always wants to make sure that you will be able to pay back the loan.

**What is the Purpose of a Personal Loan?**

* The purpose of a loan is the reason why a person applies for funds from the lender. This could be anything from [debt consolidation](https://www.herofincorp.com/personal-loans/debt-consolidation-loan), marriage expenses, medical emergencies, overseas travel and education related expenses, home renovation etc.

**Does the reason for a personal loan matter?**

* Technically, no. Personal loans are taken for personal reasons and a higher premium is charged for it. However, if you are applying for a loan that is of high value, lenders usually ask why you need it in the first place. Also, the lender might ask the reason for personal loan so that they can suggest you better loan categories for example there are loans designed for marriages, education, medical emergencies and so on and so forth. But, the purpose for which you intend to use your personal loan does not [affect the approval of that loan](https://www.herofincorp.com/blog/5-factors-that-affect-your-personal-loan-eligibility).
* The purpose of your [personal loan](https://www.herofincorp.com/personal-loans)will not affect the interest rate that you will be charged. Hence, you can freely talk about the purpose of such a loan without any worries.

**What are the factors that lenders consider when approving a personal loan?**

* Even though the purpose of a personal loan does not matter, there are certain factors that do impact loan approval.

**Credit Score:**

* The first factor that a loan approval officer will check is your credit score. A [credit score](https://www.herofincorp.com/blog/credit-scores-and-their-significance) is, essentially, a score that every individual receives denoting how credit-worthy a person is. As soon as you open a bank account, you will be accorded a credit score. The higher the credit score is, the more likely it is that you will be able to repay your loans

**Income:**

* Depending on the loan amount, the loan approval officer will check your monthly income. If your monthly income is high enough; means if you are leftover income after paying of your various bills, EMIs, etc., is satisfactory. it is much more likely that the officer will approve your loan. If you want to take out a large personal loan and your monthly income is low, then your chances of receiving the loan will be much lower.
* Essentially, lenders want to know if you have the ability of repaying the loan.

**Age:**

* It may sound surprising, but your age is also a factor for loan approval. You may not receive the loan if you’re too young or too old. When you’re very young (like 20 years old), then you still don’t have enough credit history and you’re either still a student or you’re new to the workforce. It is likely that you don’t have the financial stability to be able to repay the loan.
* Further, lenders prefer not to provide loans when the loan would mature after the person reaches 65 years of age. This is because at such an age, people tend to retire and they might not have a source of income. They may also be facing chronic health problems which make it less likely that they will be able to repay the loan.

**Repayment Schedules:**

* Lenders generally prefer shorter repayment schedules. A shorter repayment schedule means that the lender can recover the loan However, you should never promise too short a tenure for payback. This may significantly increase the amount of money that you have to repay per month, so you should take that into account.

**Personal Loan Documentation:**

* Your documentation should be in order when you apply for a personal loan. These documents can include your [PAN Card,](https://www.herofincorp.com/blog/advantages-having-pan-card) Identity Proof, Address Proof, Financial Statements, and so on.
* The loan officer will go through all the [personal loan documents](https://www.herofincorp.com/documents-required-for-personal-loan) to ensure that everything checks out. If there is any discrepancy, then it is likely that your loan won’t get approved.
* The documents that are required may vary depending on whether you’re a salaried individual or a self-employed individual.

**2. PROBLEM DEFINITION &DESIGN THINKING**

**2.1 EMPATHY MAP:**

**Login**

YES

**Fill in personal loan information**

**Verify the document in the bank**

Forget password

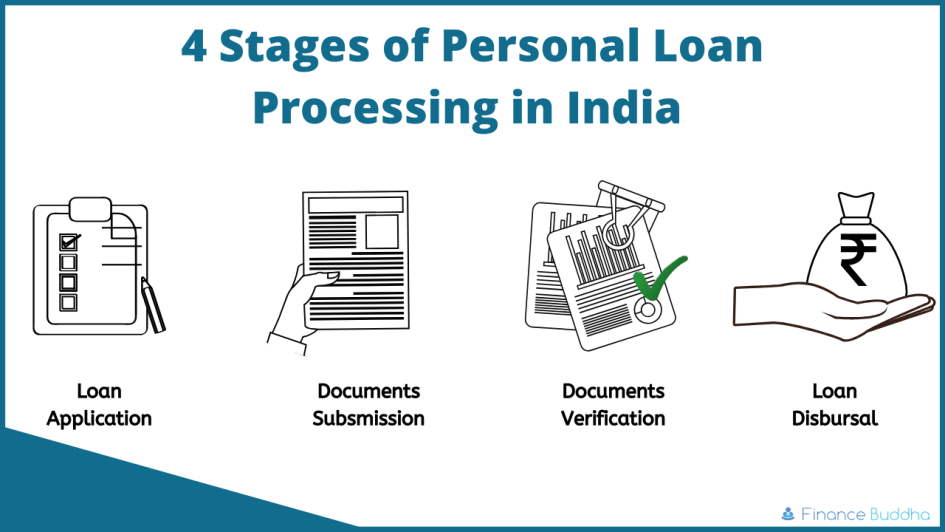
**Loan sanction success**

ff

**Not approval for personal loan**

**Reset password**

**2.2 IDEATION & BRAINSTORMING MAP:**



**3. RESULT**

**3.1 Data Model:**

**Table 1: Login:**

|  |  |  |
| --- | --- | --- |
| **S.NO** | **Particulars** | **Data type** |
| 1 | User Name | Text |
| 2 | Password | Text |

**Table 2: Registration:**

|  |  |  |
| --- | --- | --- |
| **S.NO** | **Particulars** | **Data type** |
| 1 | Username | Text |
| 2 | Password | Text |
| 3 | Contact | Text |
| 4 | Email | Text |

**Table 3: Bank Details:**

|  |  |  |
| --- | --- | --- |
| **S.NO** | **Particulars** | **Data type** |
| 1 | Bank Name | Text |
| 2 | Branch Name | Text |
| 3 | Address | Text |
| 4 | IFSC | Text |

**Table 4: Eligible Details:**

|  |  |  |
| --- | --- | --- |
| **S.NO** | **Particulars** | **Data type** |
| 1 | Customer Name | Text |
| 2 | Gender | Text |
| 3 | Job | Text |
| 4 | Document | Text |

**Table 5: Loan Details:**

|  |  |  |
| --- | --- | --- |
| **S.NO** | **Particulars** | **Data type** |
| 1 | Select bank | Text |
| 2 | Customer Name | Text |
| 3 | Job | Text |
| 4 | Loan amount | Text |
| 5 | Interest rate | Text |
| 6 | Document | Text |

**3.2 Activity & Screenshot**

**4. TRAILHEAD PROFILE PUBLIC URL**

**Team Lead -**

**Team Member 1 -**

**Team Member 2 -**

**Team Member 3 -**

**Team Member 4 -**

**5. ADVANTAGES & DISADVANTAGE**

**Advantages of Personal loans:**

* There are many advantages of personal loans to consider especially when you’re trying to weigh up whether it is the right product compared to a credit card finance deal or overdraft. Below we’ve put together the main benefits of personal loans so you can make an informed decision.

**Spread the cost of a significant purchase safely:**

* The biggest advantage of a personal loan is that it allows you to take a large purchase such as a holiday wedding or buying a new car and spread the cost over a longer period. This makes it much more affordable and means you won’t compromise your existing personal finances in order to afford it.

**Can help you manage your personal finances:**

* Personal loans are not always used for making significant purchases; they can also be used to manage your existing Department more effectively. This takes the form of a department consolidation loan, where you take multiple Department .ocured on credit cards overdrafts and previous loans for example, and lump them together into one product the advantages here is that you could save money on interest in that you will one pay one rate, rather than multiple rates that could end up being more expensive.

**Ideal if you have struggled to save in the past:**

* If you have had issues in the past trying to save money on a monthly basis getting a personal loan is the opposite way to do it. Rather than put money aside over the course of months and years, you’re actually setting aside an amount that you will have Google pay, in order to afford something more expensive.

**Unsecured loans are not tied to assets:**

* By opting for an unsecured personal loan, you are also saving yourself the risk that is associated with a secured loan where you have to secure a loan against your home are other asset. It is purely based on your own credit score so there is no other collateral that is required for this type of borrowing.

**Disadvantages of personal loan:**

* Whilst there are many distinct advantages to applying for a personal loan there can also be disadvantages which might mean that it is not the best way to borrow for you take a look at the main disadvantages of a personal loan.

**Long-term commitment:**

* The biggest disadvantage to personal loans is that you have to make a long term financial commitment. While this could be fine if you have a stable income and predict you will still be earning the same amount or more in a number of years this could be more difficult for those with fluctuating incomes such as a freelancer or someone who is self-employed.

**Good product requires a good credit score:**

* Another disadvantage is that getting a personal loan with a low interest rate is all based on your credit score. This means that if you have a poor or low credit score then you might not be eligible to get the best loan products available. If you have had issues with borrowing in the past or have ever missed a payment on a previous consumer credit product, it may be more difficult for you to get the loan that you want.

**Certain loan types are riskier than others:**

* While an unsecured personal loan has a certain amount of risk attached, there are other types of loans that are riskier, based on how much you have to repay and the interest rate. Short-term loans for example, come with a very high interest rate that you will need to pay off in full and on time to ensure you don’t accrue further high interest payments or other penalties.

**Will never get 0% interest:**

* Personal loans will always have added interest that will be calculated during your application and added on top of your monthly repayments, but this will never be at 0%, unlike other consumer credit products like credit cards. This is a disadvantage when comparing products as it might be preferable for you to go down the route of a credit card or finance deal that is fixed at 0%, as long as your credit score is good enough to make you eligible.

**6. APPLICATIONS**

**Personal loan application process:**

* When you need extra money for family and personal emergencies such as a wedding or hospitalisation, you might decide to go for a personal loan. Personal loans are a convenient way of getting additional funding because they require fewer documents and are processed faster than any other retail loan.

**How to apply for personal loan?**

* There are several ways to apply for a personal loan

**Personal loan application process online:**

* If the personal loan applicant has an existing relationship with the financial lender, he/she can apply for a personal loan via his/her net banking account and could possibly be eligible for a preapproval. For other customers, they can apply for a personal loan online by following the steps mentioned below:
* Visit the website of the financial lender.
* Under the loan section, choose personal loans.
* Click on the ‘apply now’ option.
* Enter the details in the personal loan application form and submit it to the bank.
* The bank will assess the eligibility of the applicant and request for the submission of the required KYC documents and income documents.
* If the applicant is found eligible, the bank will disburse the loan amount to the bank account of the applicant, as mentioned in the application form.

**2. Personal loan application offline:**

* Listed below is the process of applying for a personal loan at the branch of the financial lender.
* Visit the branch of the financial lender.
* Procure the personal loan application form and enter all the required details.
* Submit relevant documents that prove one’s income, age, address and identity.
* The lender will then verify the documents and check the eligibility of the applicant.
* The loan amount will be transferred to the bank account of the applicant if he/she is found eligible.

**3. E-mail and phone banking requests:**

* You can leave a request for personal loan with the bank through an Email or at the customer service centre of the bank. The bank will review your eligibility and contact you to take the process further.

**4. Request through ATM machine:**

* Nowadays you can [apply for personal loan](https://www.bankbazaar.com/personal-loan.html) via ATM kiosks as well. Once you raise a request the bank personnel will contact you.

**How Personal Loan Applications are processed?**

* The process of sanctioning of a personal loan is simpler than property loans such as home loan and car loan. This is because, in case of property loans, the bank has to verify not just your financial information, but also the credibility and eligibility of the asset that you are purchasing with the loan amount. For personal loan, you are the collateral security yourself, so the bank has to do A Back ground verification only on you.
* Once the bank receives your loan application, it will check the information provided by you against the data available with them, such as bank balance, salary deposits made into your account, EMIs being deducted from your account, etc.
* The bank will cross-check and confirm your identity and address details through your Know Your Customer (KYC) documents. Banks may visit you at home to confirm your place of residence and check with your office on your employment tenure.
* The copy of your Income Tax Return or salary payslips will help the bank gauge your repayment capacity. This will help determine how much loan amount the bank is willing to sanction to you.
* Some banks might ascertain your credit-worthiness by finding out your CIBIL score. The higher the CIBIL rating, the more your chances of getting the loan approved.
* The bank will also review your age, number of years of employment left, and salary growth prospects, to decide how much loan it can approve for you and what the repayment period should be.
* The two key elements in ensuring approval for your personal loan application are to maintain a credit score of 750 or more, and to ensure that you [provide all the documents sought by the bank](https://www.bankbazaar.com/personal-loan/documents-required-for-personal-loan.html). Once the loan is availed, the onus of repayment lies with you and the bank can levy penal interest on outstanding balance if EMI is not paid on time. If you miss several EMIs, the bank can also take legal action.

**Documents required To apply for a personal loan:**

* Proof of age and identity – [passport](https://www.bankbazaar.com/passport.html), Aadhaar card, Voter ID card, etc.
* Proof of residence – house registration certificate, sales deed, Aadhaar card, Voter ID card, etc.
* PAN Card
* Proof of Income – Form 16, Salary slips, Bank statements, Income Tax Certificate, etc.
* Passport-size photographs.
* Duly-filled and self-attested personal loan application form.

**How will I know if my personal loan application is approved?**

* Personal loan applicants can check the status of their application on the website of the lender, by calling the customer care unit or at the branch of the lender. To check their personal loan status, the applicant will have to use the personal loan application reference number, registered mobile number, and date of birth. That said, when the lender approves the personal loan, the same will be communicated via SMS, email or on his/her registered mobile number.

**FAQs on Personal loan process:**

**What are the reasons that could result in my personal loan application being rejected by the financial lender?**

* The financial lender would have rejected your personal loan application possibly because you did not meet the eligibility criteria with regard to the minimum income requirement, age, work experience, CIBIL score, past repayment history, etc.

**Should I make multiple personal loan applications to improve my chances of being eligible?**

* No, you should not make multiple personal loan applications with a number of lenders as each application rejection will affect your credit score. Once you have checked your eligibility, make an application with just one lender.

**Is there a fee for the personal loan application form?**

* No, the personal loan application form can be downloaded or procured at the bank branch for free.

**Will the processing fee be more if I apply for the personal loan online?**

* No, the processing fee will be same if you apply for a personal loan online or offline.

**Is it possible to get a personal loan instantly?**

* Yes, if you have an existing relationship with the bank and are a pre-approved customer, the personal loan will be disbursed almost immediately.

**7. CONCLUSION**

* So, what we have witnessed is-taking a personal loan is a wise decision to meet extra funding requirement. But before making out any decision on a personal loan, it is wise to check service charges, foreclosure charges and hidden fees associated with this. This way, we can compare the benefits and drawbacks of different lenders and go for most suitable and affordable schema.
* Gone are the days when it took months to get a loan disbursed into your bank account. So, do away with filing personal loan applications with banks and transact with the future of consumer lending.
* Even individuals with a poor transection history or low credit score can avail of personal loans and consumer durable loans with online loans apps.
* Get instant loan approvals with online[loan apps](https://play.google.com/store/apps/details?id=com.gopaysense.android.boost) and receive the funds in your bank account in a matter of days. With the evolution of paperless personal loans and digital lending, it has been easier for salaried and self-employed individuals to get loans.
* Even individuals with a poor transaction history or low credit score can avail of [personal loans](https://www.gopaysense.com/instant-personal-loan/) and consumer durable loans with online loan app.

**8. FUTURE SCOPE**

* In near future this module of prophecy can be integrated with the module of automated processing system.
* The system is trained on old training dataset in future software can be made resembling that new testing date should also take part in training data after some fix time.
* Get instant loan approvals with online[loan apps](https://play.google.com/store/apps/details?id=com.gopaysense.android.boost) and receive the funds in your bank account in a matter of days. With the evolution of paperless personal loans and digital lending, it has been easier for salaried and self-employed individuals to get loans.
* You might be able to borrow more then with a credit card.
* On larger balances, they usually charge a lower rate of interest when compared with a credit card or other forms of credit.
* Your loan repayments will usually be a fixed amount each month, which can make it easier budget.