I had used the ***current_application dataset*** to do the analysis of my project.Below are the few key points that I got to know from the Bank Loan Case Study.

Various factors come into picture directly or indirectly towards the loan approval process as well as the aftermath can also alter the loan repayment and loan closing or renewal process.The given dataset helps us to analyze the risks involved in providing loans to various applicants based on certain criteria and categories they belong too.

The findings of the case study analysis -

1. The loan approval process depends a lot on the income criteria of the individual to check whether he can pay back in future, so the trend continued during the repayment process checks.
2. During the loan application process factors such as the purpose of loan, profession and educational backgrounds are necessary factors to determine the loan credit amount, after the approved process factors that can impact the individual's ability to manage and pay loans can include the are of his residence which indirectly impacts his finances, same goes with the family members and number of childrens of the applicant that depends for their survival and living which can in some way hinder the applicant to default on loans.
3. The factor pertaining to age and employment also influences the overall loan finances as the group of applicants is on the younger side (early 20s to mid 30s) they are ready to take risks and work for their dreams and maybe take up loans for some business or home while the same number in older adults above the age of 60 shows a decreasing trends.
4. The same above trend can be seen in during the defaulting factors and regular payments the ones who are working and on the younger side tends to manage the finances and pay the amounts while those who are not regular employees like laborers or whose age factor is over the working years can have hard time managing the finances and may possibly default at times.
5. If we consider the gender distribution of applicants we can see a trend of almost twice number of applicant being the one who applied for loan process or is the one paying up the loans more compared to men in our dataset which is interesting but we could consider factors such as tax savings or other things where family members take up loans on the names of parents or fiance to get benefits so that could be one of the reasons as the data is not that big and a sample of the chunk would not properly help us analyze the situation.
6. Certain factors that impact the overall loan repayments that I have observed include - age, employee & profession, income & spendings, region of living (impacts finances), education of individuals, gender, family members count like total family members , count of children's etc among other factors.

As a financial institution a bank needs to lend out loans and keep the cycle running for its business to continue but it is also important to keep the finances in check and see for signs of defaulters and try to mitigate the situation as early as possible to avoid losses. The dataset like

this can help the banks to analyze and calculate the risk associated with applicants who may tend to default in future by rejecting the application at the beginning or formulating strategies to minimize the damage after the default starts like having a guarantor or handing out loans based on assets which later on the banks can take over to cover up the loan cost if an individual say a business starts defaulting on huge amounts.

It is the work of an analyst to come up with strategies to reduce such loss and help the bank to flourish more as well as help individuals to get the required loans by evaluating suggestions for better chance of loan approvals.

The analysis can help the analyst to device certain key factors to detect and mitigate the loan process and defaults reduction in future process.Few points that can be concluded from such research that helps the bank to operate large finances and give year on year value back in the markets are -

1. By looking into the income frequency the banks can decide certain brackets of approving loans to individuals the bracket can further be enhanced by adding up the profession **(Bivariate analysis)** which will help us understand the relation of income with different profession that in turn gives us a picture of the loan amount an individual should be given according to his profession and income.
2. By checking the loan type and the region where the applicant stays one can get insights on average spendings that people do and formulate strategies while handing out loans as these factors will impact the future repayment process a lot.
3. The analysis on education and family count helps us understand the mindset and finance habits of individuals that can help the banks to regulate the loan process furthermore which will benefit both the entities in question.
4. The **correlation analysis** helps us understand the factors impacting the loan repayment process so can be taken into account so as to keep tabs on individuals on various individual factors before handing out loans.
5. Analysis categorical trends like age or education factor can help to ascertain which is the right bracket of loan approval - too young people with assets can be risky gamble as they can lose it in business if they don't have a proper education or mindset same with older applicants they might have savings and experience but approving huge loans to them is risky take if some uncertain things happen.
6. Not only these but certain evaluations can be made on the dataset including descriptive stats and variate analysis on certain impacting factors to decide about the approval process in future.

A bank as an entity has to keep on lending money in the market not just to individual but to business and for various reason having a through analysis or previous application dataset and even the rejection and approval criteria and trends over the years can help analysts and statistician to device ideas and strategies to mitigate the risk involved in defaulting or worst case scenario for business declaring bankruptcy and losing the assets to other institutions so the

individuals history , spending, social status and family background should be analyzed as part of the analysis to manage and develop risk mitigation strategies.

On smaller scale the analysis helps us to just go through factor impacting loan repayment or about the distribution of loans and individuals based on various different factors but due to small data inputs and vast number of factors to take into consideration (**Data Imbalance & Outliers**) we are able to get meaningful insights from our previous dataset. Training these dataset and taking new flowing data not just static inputs the analyst can formulate models to tets and train on various different factors to predict individuals behavior and risk involved in certain category or individuals and in time assist the bank to resolve the issue before major defaults occur be it on a individual applicant or on business ones.

On a large picture the analysis not only helps us to device formulation for loan repayment mitigation and risk management it also helps us to predict and analyze data further so as to improve the banks policies and cure the future risk during the time of application itself by judging the individuals not just on their income criteria and thinking they will not default but rather analyzing his overall metrics and mitigating him and formulating strategies such that not only the banks benefit from the approval or rejection but the individuals also succeed in securing the loans by involving savings scheme like SIP or Mutual funds investment alongside loans to have a backup for future in case of some financial burdens or taken into account of assets that they have to easily secure a bigger loan amount than his overall score etc.

The banks make money by lending out money and earning on the interest on them but its not a childs play to hand out loans to every individual that walks into the banks for a loan thinking of securing interest for every successful applicant. Each individual coming to bank for loans brings in a share or risk factor that the banks needs to take into consideration not just focus on interest but rather think of long term investment they are going to get from the clients like saving account or a MF investment or even a new loan if the individual trusts in the bank finances and strategies.

If all factors are successfully managed and the risks are mitigated the bank will give year on year growth and also continue to earn for many decades from its clients.Taking risk in banking and finance business is the way to withstand in the market and grow towards the success journey but to do so the institution must have proper strategies for risk mitigation and process approval.

The dataset we worked on is just for bank loan case study in actual working banking institutions have various investments and lending business from credit issuance to debit and savings account or be a Mutual fund policy or some func schemes to gain interest all such different policy and schemes involves various factors of risk, fraud, market tumblance and many other risky factors but the institutions needs to do them to survive and flourish so it is really important to study analyze and come with strategies to overcome the risk at the earliest stage as possible not just for loans but also on other schemes too, risk mitigation is a vast domain in the finance industry and without diving

deep into it the banks might fail to open their doors in future due to wrong decision and poor risk management so it become extremely important for Data analyst and financers to work together to look into the data from previous findings and judge the outcomes of future and build models and test them to mitigate the risks and help the banks and individuals to have a fruitful future.

I have tried to add as much of the analysis i could look into about the bank loan case but it is a vast topic so i could not cover everything next time i would try to study and formulate a dashboard for such dataset to make it look more insightful.