

Not Approved's Twitter Thread

John Morillo, Mohil Patel, Cinah Pourhamidi,
David Rohweder, Oleg Sapranenko, and Alec Sudol

LINK: <https://twitter.com/NotProfDancy/status/1652137110730571781>





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Not Approved wants to automate the home loan process using AI and making it as accurate and transparent as possible. Even though many banks already use AI to in loan approvals they are lacking in transparency. (2/N)



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This can cause people who are highly qualified for a loan to be rejected and not know why they were rejected. Any person applying for a loan would want a system that is the most accurate and least biased when applying for their loan, to maximize their chances of approval. (3/N)



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Our goals are answering these 3 questions: How can we make a model that is accurate on approving home loans? How can our model be transparent in its selection process? How can we combat bias in our model when making a decision? (4/N)





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Our solution uses a neural network to evaluate various inputs from an application. The neural net evaluates the different input categories to determine the person's eligibility to be able to comfortably afford and be able to pay back the loan that they requested. (5/N)



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We also used an RBES to evaluate the interest on the loan given the input that the neural network made in order to assign a "riskiness" factor & choose an appropriate interest on the loan. This combination is our solution to the issue (6/N)



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Using this approach, we began the training of our model. We used the Loan Data Set from Kaggle with 614 data points to train our model. (7/N)



kaggle.com

Loan Data Set

Loan Data Set Classification



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When we tested the model, the majority of loan applications in the dataset fell into the "Very Low" interest rate category, indicating a higher approval probability for this group. This emphasizes the significance of securing a lower interest rate due to financial profile. (8/N)



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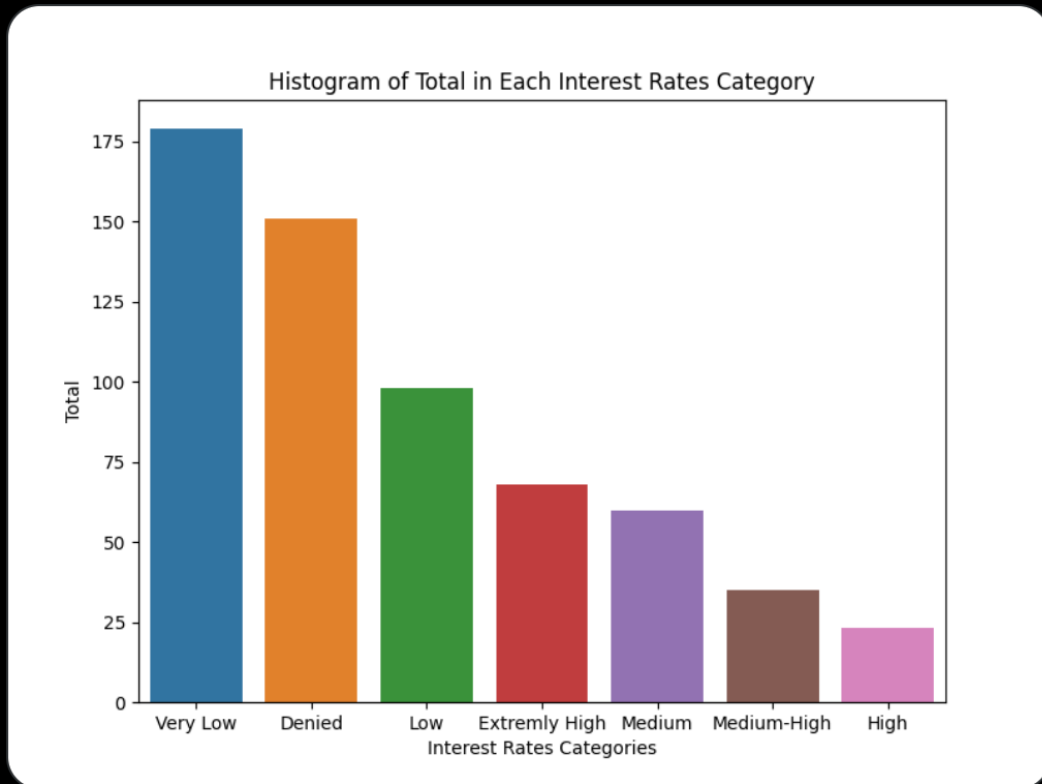
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The presence of many "Denied" decisions shows many applicants displayed unfavorable characteristics resulting in rejection. This displays the importance of fulfilling lender requirements, a positive credit history, and financial stability enhancing acceptance chances. (9/N)



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You can review the demonstration of our solution we're released on Github at this link: [github.com/davidrohwerder/...](https://github.com/davidrohwerder/Loan-Acceptance) (10/N)



github.com

GitHub - davidrohwerder/Loan-Acceptance

Contribute to davidrohwerder/Loan-Acceptance

development by creating an account on GitHub



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To wrap up, we considered the broader possibilities of this solution in the future. In a utopian future, our loan approval model would service more users at a more efficient rate. This would allow more applications to be reviewed in a shorter period of time... (10/N)



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.. increasing turnover rates and ensuring people receive their needed funds sooner. This model would also strive to eliminate bias from commercial banks to encourage users of all backgrounds to apply without the worry of being excluded due to sources of bias. (11/N)



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The ability to get an unbiased approval within minutes would be game changing especially for first time homeowners. (12/N)



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Looking at this from a more dystopian view, our loan approval model would apply bias towards certain groups. The model would learn to approve subsets of users based on attribute values that are not financial metrics (such as race, marital status, geographic location, etc.) (13/N)



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The model will be encouraged to learn how to base its assessment of approval to favor categories of the population which would be detrimental to its success and function. (14/N)



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Imagine a world where you need to live your life in a highly specific way to even qualify for a loan and even then, if you fall in a specific demographic your application will still be denied. (15/15)