

- 1. What problem your application solves? If it's a new product, what is the size of the market it can address? If it's an old solution how much money can it save and what are the risks.**

With the help of machine learning tools, we can formalize the Urban Land Cover Data. We can analyze the total cover of concrete, tree, grass, building, asphalt, concrete, and green shadow cover in a city or town. And by further implementing machine learning tools we can exactly formulate the total percentage of the above-said items, and this helps in planning the further city/town expansion in a more sustainable manner.

With the help of AI & Machine learning, we can drastically reduce the manpower and manhours to be spent on a project of this kind. Also, data interpretation, analysis & analytics becomes much easier. On average 25-30% of total project cost and manhours can be saved.

Risks involved are, as data need to be stored in cloud/servers of the work done through AI & Machine learning, there's a chance of data being corrupted or misused by anti-social elements as a study like Urban land cover involves federal states confidential data.

- 2. Explain your results: what was the performance of your method using metrics in class. Compare the results with other models example, Linear Regression Vs Ridge Regression.**

We have done the model prediction in 2 ways

METHOD 1: Straight forward approach for classification without feature selection

TYPE 1: Split Train and Test set

We split the training set into train and test set. This was done to compare how well a model gets trained to predict with its own split test set. The accuracy for this model was 92% with all the features.

METHOD 2: Using feature selection and cross-validation

In this method, we have done Feature Selection. Feature selection has 3 benefits. First it makes the model simpler and interpretable. Second, we can reduce variance. This will eventually avoid overfitting. Also, we can reduce the computational costs for training the model. We have used Random forests for feature selection. Tree based strategies used by Random forests calculates purity of the node, thus they rank the features well. Impurity occur at the end of the trees. This is how we prune tree below a particular node.

- 3. What is the monetary value and Risks of your application after its performance? How much money can you save? For example, if you build an application to determine if someone would default on their loan, how much money would you save if your application prevented 50 people from getting a loan who defaulted. How much money did you lose from rejecting people who would have paid back your loan? Would you save money as you need fewer employees? You can estimate values if you can't find the data.**

Monetary value includes the data to be stored in the cloud, yearly activations charges for the program, continuous updates of the application, etc., which can be 10% of the total project cost. Risks involved are, as the program purely runs on data entered in the application there is a chance of wrong data entry and application of loans being rejected.

As discussed above there are chances of loan rejections due to wrong data interpretation or incorrect data entry etc., but the percentage of this will be less than 5% and there is a chance to rectify the same later. we can drastically reduce the manpower and manhours to be spent on a project of this kind. Also, data interpretation, analysis & analytics becomes much easier. On average 25-30% of total man-hours & employees can be saved. Also, with the use of AI & Machine learning, we can process more loans and applications per day which can bring revenue through back your lone interests. Above all, with the application, we can identify the spending and lending behavior of the customers through AI & Machine learning and tailor-make our product launch in the future.

4. Other risks and benefits?

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