

Model Development Phase Report

Date	18 June 2024
Team ID	Team - 740093
Project Title	To Predict Consumer Price Index
Maximum Marks	4 Marks

Initial Model Training Code, Model Validation and Evaluation Report

The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include classification reports, accuracy, and confusion matrices for multiple models, presented through respective screenshots.

Initial Model Training Code:

```
from sklearn.ensemble import RandomForestRegressor  
rfr=RandomForestRegressor()  
rfr.fit(x_train,y_train)
```

▼ RandomForestRegressor
RandomForestRegressor()

```
from sklearn.metrics import accuracy_score
```

```
from sklearn.linear_model import LinearRegression,Lasso  
lr=LinearRegression()
```

```
lr.fit(x_train,y_train)
```

▼ LinearRegression
LinearRegression()

Model Validation and Evaluation Report:

Model	Classification Report	F1 Score	Confusion Matrix																														
Random Forest	<div>https://accounts.google.com/SignOutOptions?hl=en&continue=https://colab.research.google.com/drive/15eWnRR2VMOhgmmCTe_Ytbr5AdP-E7Ssd%3Fusp%3Dsharing&ec=GBRAqQM</div> <div><pre>print(classification_report(y_test,ypred))</pre></div> <table><thead><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr></thead><tbody><tr><td>Loan will be Approved</td><td>0.78</td><td>0.83</td><td>0.80</td><td>75</td></tr><tr><td>Loan will not be Approved</td><td>0.85</td><td>0.81</td><td>0.83</td><td>94</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.82</td><td>169</td></tr><tr><td>macro avg</td><td>0.81</td><td>0.82</td><td>0.82</td><td>169</td></tr><tr><td>weighted avg</td><td>0.82</td><td>0.82</td><td>0.82</td><td>169</td></tr></tbody></table>		precision	recall	f1-score	support	Loan will be Approved	0.78	0.83	0.80	75	Loan will not be Approved	0.85	0.81	0.83	94	accuracy			0.82	169	macro avg	0.81	0.82	0.82	169	weighted avg	0.82	0.82	0.82	169	81%	<div><pre>confusion_matrix(y_test,ypred)</pre></div> <div><pre>array([[62, 13], [18, 76]])</pre></div>
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Decision Tree	<pre>print(classification_report(y_test,ypred))</pre> <table><thead><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr></thead><tbody><tr><td>Loan will be Approved</td><td>0.73</td><td>0.83</td><td>0.77</td><td>75</td></tr><tr><td>Loan will not be Approved</td><td>0.85</td><td>0.76</td><td>0.80</td><td>94</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.79</td><td>169</td></tr><tr><td>macro avg</td><td>0.79</td><td>0.79</td><td>0.79</td><td>169</td></tr><tr><td>weighted avg</td><td>0.79</td><td>0.79</td><td>0.79</td><td>169</td></tr></tbody></table>		precision	recall	f1-score	support	Loan will be Approved	0.73	0.83	0.77	75	Loan will not be Approved	0.85	0.76	0.80	94	accuracy			0.79	169	macro avg	0.79	0.79	0.79	169	weighted avg	0.79	0.79	0.79	169	79%	<pre>confusion_matrix(y_test,ypred)</pre> <pre>array([[62, 13], [23, 71]])</pre>
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KNN	<pre>print(classification_report(y_test,ypred))</pre> <table><thead><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr></thead><tbody><tr><td>Loan will be Approved</td><td>0.60</td><td>0.57</td><td>0.59</td><td>75</td></tr><tr><td>Loan will not be Approved</td><td>0.67</td><td>0.69</td><td>0.68</td><td>94</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.64</td><td>169</td></tr><tr><td>macro avg</td><td>0.63</td><td>0.63</td><td>0.63</td><td>169</td></tr><tr><td>weighted avg</td><td>0.64</td><td>0.64</td><td>0.64</td><td>169</td></tr></tbody></table>		precision	recall	f1-score	support	Loan will be Approved	0.60	0.57	0.59	75	Loan will not be Approved	0.67	0.69	0.68	94	accuracy			0.64	169	macro avg	0.63	0.63	0.63	169	weighted avg	0.64	0.64	0.64	169	64%	<pre>confusion_matrix(y_test,ypred)</pre> <pre>array([[43, 32], [29, 65]])</pre>
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