

Airbnb Price Prediction

Weekly Project Meeting Minutes

Date of meeting: 04/03/2023 – 04/06/2023

Group: 6

Section: 4

Group members:

Name	ID
Joyal Patel	0792200
Raihaanah Abubakkar Sidiq	0785786
Ezekiel Ayeni	0778486
Jyoti Bala	0792019
Harsh Kumar	0791250

Specific Activities that were completed/worked on:

List brief description of activities carried out by group members.

- During the week of 3rd to 6th April 2023, the team met to review the progress made since the last meeting.
- All member of the team participated in taking minutes of the meetings within the period under review, this would be collated by Ezekiel Ayeni for final submission.
- Tasks were divided among the team members concerning project storytelling. Jyoti Bala, Ezekiel Ayeni, Harsh Kumar all completed the aspect of models for price prediction using Lasso, Ridge, Random Forest, and decision tree models.
- Rihaanah Sidiq and Joyal Patel both completed prediction visualization using tableau.

Specific Output from work:

Include a brief summary of any written work or any code developed.

- Lasso, Ridge, Random Forest, and decision tree models were used to predict prices for Airbnb in major cities across Canada.
- Comparisons were made among these models to select the best models for predicting prices. See codes below:

```
def models(X_train, X_test, y_train, y_test):  
    models = pd.DataFrame(columns=["Model", "Test Sc.", "Train  
Sc.", "MAE", "MSE", "RMSE", "RMSE CV"])  
    ridge = Ridge(alpha=1.0)  
    ridge.fit(X_train, y_train)  
    y_pred = ridge.predict(X_test)
```



```

        max_features = 'sqrt',
        max_depth = 30,
        bootstrap = True)
rfr.fit(X_train, y_train)
y_pred= rfr.predict(X_test)
test_score = r2_score(y_test, y_pred)
train_score = rfr.score(X_train, y_train)
mae = mean_absolute_error(y_test, y_pred)
mse = mean_squared_error(y_test, y_pred)
rmse = np.sqrt(mean_squared_error(y_test, y_pred))
rmse_cv = np.sqrt(-cross_val_score(rfr, X_train, y_train,
scoring='neg_mean_squared_error', cv=5).mean())
rfr_row = {"Model": "RFR", "Test Sc.": test_score, "Train Sc.": train_score
          , "MAE": mae, "MSE": mse, "RMSE": rmse, "RMSE CV": rmse_cv}
models = models.append(rfr_row, ignore_index=True)

display(models.style.highlight_min(subset=["MAE", "MSE", "RMSE", "RMSE CV"],
        color = 'springgreen', axis = 0).highlight_max(
    subset=["Test Sc.", "Train Sc.], color = 'springgreen', axis = 0))
fig, ((ax1, ax2), (ax3, ax4), (ax5, ax6)) = plt.subplots(3, 2, figsize=(16,6), dpi=300)
plt.subplots_adjust(hspace=1.2)
sns.lineplot(x=models["Model"], y=models["Test Sc.], ax=ax1, marker="o",
color="teal")
sns.lineplot(x=models["Model"], y=models["Train Sc.], ax=ax2, marker="o",
color="teal")
sns.lineplot(x=models["Model"], y=models["MAE"], ax=ax3, marker="o", color="teal")
sns.lineplot(x=models["Model"], y=models["MSE"], ax=ax4, marker="o", color="teal")
sns.lineplot(x=models["Model"], y=models["RMSE"], ax=ax5, marker="o",
color="teal")
sns.lineplot(x=models["Model"], y=models["RMSE CV"], ax=ax6, marker="o",
color="teal")
ax1.set_title("Test Scores Comparison", size=18)
ax2.set_title("Train Scores Comparison", size=18)
ax3.set_title("MAE Scores Comparison", size=18)
ax4.set_title("MSE Scores Comparison", size=18)
ax5.set_title("RMSE Scores Comparison", size=18)
ax6.set_title("RMSE CV Scores Comparison", size=18)
ax1.tick_params(labelrotation=30)
ax2.tick_params(labelrotation=30)
ax3.tick_params(labelrotation=30)
ax4.tick_params(labelrotation=30)
ax5.tick_params(labelrotation=30)
ax6.tick_params(labelrotation=30)
plt.show()

```

On Target:

- Indicate the current status of your project:
 - green green: everything on track for completion by due date

Challenges/Disagreements:

List any challenges identified/discussed and possible solutions.

- No major challenge at this stage of the project.
- The status of the project remains green.

List any notable disagreements and subsequent discussion and resolution.

- At this stage of the project, there were no major disagreements within the team. All concerns were duly resolved.

Planned Activities for coming week:

List brief description of activities by group members

- The team prepares for individual interviews using the updated project presentation documents.
- Rihaanah Sidiq, Jyoti Bala, Joyal Patel, Harsh Kumar and Ezekiel Ayeni to work on different aspects of the mock and final project presentation.