Recidivism

Released from prison, returning after some time

The questi

What are the chances o
inmate to return to jail ?

Is it possible to predict
individual will return to

Project Team

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Guidance:

- Ahmad Mousa
- Joshua Steir

Presentation Structure

- **Introduction**
  - By William Brewer
- **Technical Description of the Coding Process**
  - By Dale Linn
- **Conclusions**
  - By Kiara Shannon & Hugo Troche

- Audience: Bootcamp students and instructors

NIJ Recidivism CHALLENGE

References

- PublicData:NIJ_s_Recidivism_Challenge_Full_Dataset.csv:https://data.ojp.usdoj.gov/Courts/NIJ-s-Recidivism-Challenge-Full-Dataset/ynf5-u8nk/about_data
- Background: https://data.ojp.usdoj.gov/stories/s/daxx-hznc

The file for analysis

Date Created: July 15,2021

25,835 records - each record is a person

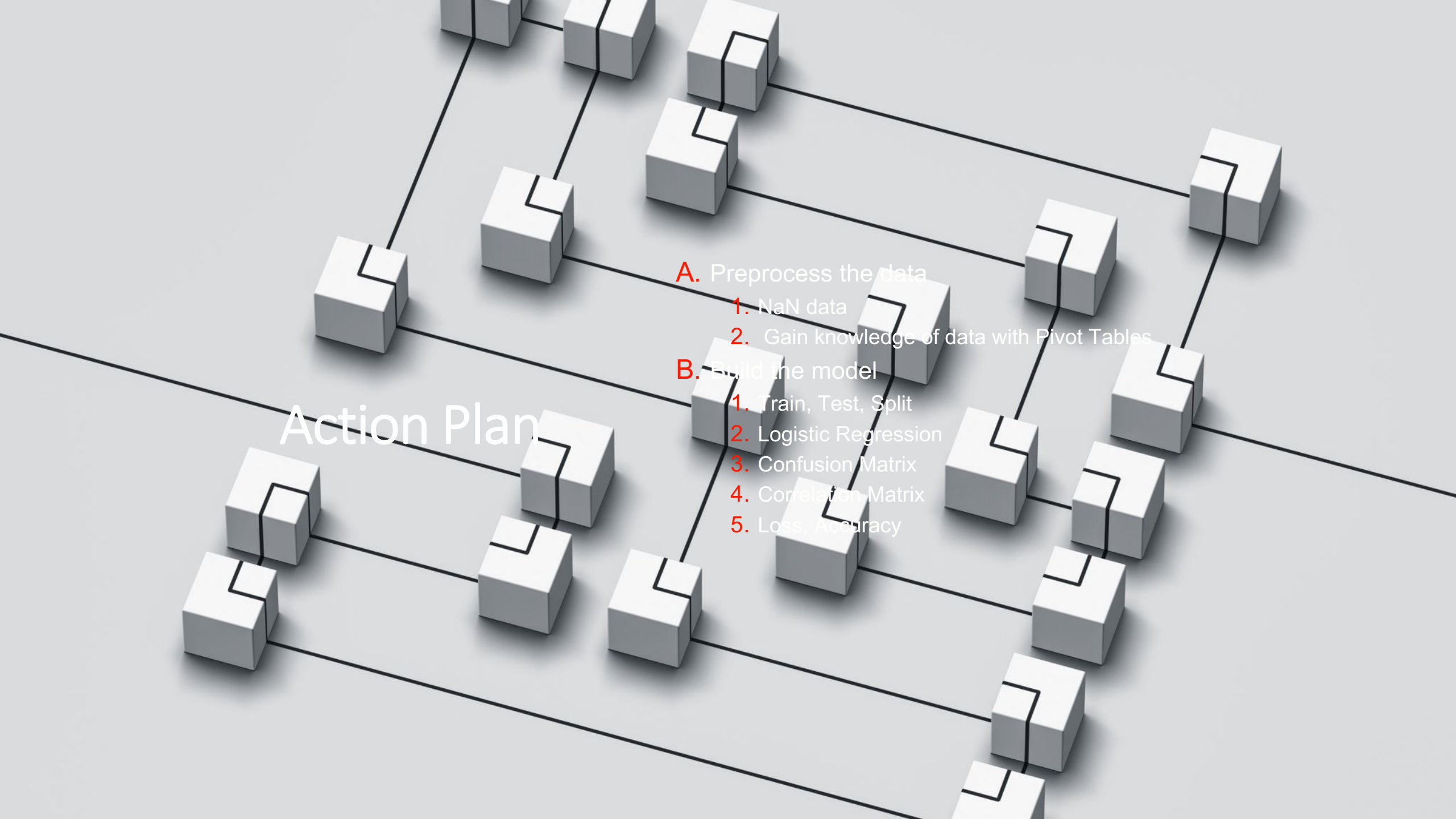
54 fields, characteristics and circumstances of the individual, compiled specifically to study Recidivism

Characteristics and circumstances

1. ID, Number
2. Gender, Plain Text
3. Race, Plain Text
4. Age_at_Release, Plain Text
5. Residence_PUMA, Number
6. Gang_Affiliated, Boolean
7. Supervision_Risk_Score_First, Number
8. Supervision_Level_First, Plain Text
9. Education_Level, Plain Text
10. Dependents, Plain Text
11. Prison_Offense, Plain Text
12. Prison_Years, Plain Text
13. Prior_Arrest_Episodes_Felony, Plain Text
14. Prior_Arrest_Episodes_Misd, Plain Text
15. Prior_Arrest_Episodes_Violent, Plain Text
16. Prior_Arrest_Episodes_Property, Plain Text
17. Prior_Arrest_Episodes_Drug, Plain Text
18. Prior_Arrest_Episodes_PPViolationCharges, Plain Text
19. Prior_Arrest_Episodes_DVCharges, Boolean
20. Prior_Arrest_Episodes_GunCharges, Boolean
21. Prior_Conviction_Episodes_Felony, Plain Text
22. Prior_Conviction_Episodes_Misd, Plain Text
23. Prior_Conviction_Episodes_Viol, Boolean
24. Prior_Conviction_Episodes_Prop, Plain Text
25. Prior_Conviction_Episodes_Drug, Plain Text

Characteristics and circumstances

1. Prior_Conviction_Episodes_PPViolationCharges, Boolean
2. Prior_Conviction_Episodes_DomesticViolenceCharges, Boolean
3. Prior_Conviction_Episodes_GunCharges, Boolean
4. Prior_Revocations_Parole, Boolean
5. Prior_Revocations_Probation, Boolean
6. Condition_MH_SA, Boolean
7. Condition_Cog_Ed, Boolean
8. Condition_Other, Boolean
9. Violations_ElectronicMonitoring, Boolean
10. Violations_Instruction, Boolean
11. Violations_FailToReport, Boolean
12. Violations_MoveWithoutPermission, Boolean
13. Delinquency_Reports, Plain Text
14. Program_Attendances, Plain Text
15. Program_UnexcusedAbsences, Plain Text
16. Residence_Changes, Plain Text
17. Avg_Days_per_DrugTest, Number
18. DrugTests_THC_Positive, Number
19. DrugTests_Cocaine_Positive, Number
20. DrugTests_Meth_Positive, Number
21. DrugTests_Other_Positive, Number
22. Percent_Days_Employed, Number
23. Jobs_Per_Year, Number
24. Employment_Exempt, Boolean
25. Recidivism_Within_3years, Boolean
26. Recidivism_Arrest_Year1, Boolean
27. Recidivism_Arrest_Year2, Boolean
28. Recidivism_Arrest_Year3, Boolean
29. Training_Sample, Number



Action Plan

A. Preprocess the data
   1. NaN data
   2. Gain knowledge of data with Pivot Tables

B. Build the model
   1. Train, Test, Split
   2. Logistic Regression
   3. Confusion Matrix
   4. Correlation Matrix
   5. Loss, Accuracy

Preprocessing

Collapse 12 child cells under Preprocessing
(Press <Shift> to also collapse sibling sections)

```
[ ]
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

```
[ ] from google.colab import files
uploaded = files.upload()
```

Choose Files no files selected Upload widget is only available when the cell has been executed in the current browser session. Please rerun this cell to enable.

```
Saving r_sorted.csv to r_sorted.csv
```

```
# Import our dependencies
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from google.colab import files
import pandas as pd
import tensorflow as tf
import keras
import warnings
```

Technical Description of the Coding Process

Conclusions

Confusion Matrix

Confusion Matrix

	Actually Positive (1)	Actually Negative (0)
Predicted Positive (1)	True Positives (TPs)	False Positives (FPs)
Predicted Negative (0)	False Negatives (FNs)	True Negatives (TNs)

Main conclusions

- 1 xx
- 2 yy
- 3 zz