Assessment

1.Below is the table containing the information of Customer price index, discounts, offers where the organization wants to predict the sales based on the cpi, discounts,offers.

|  |  |  |  |
| --- | --- | --- | --- |
| CPI | discounts | offers | Sales |
| 2600 | 3 | 20 | 550000 |
| 3000 | 4 | 15 | 565000 |
| 3200 | 5 | 18 | 610000 |
| 3600 | 3 | 30 | 595000 |
| 4000 | 5 | 8 | 760000 |
| 4100 | 6 | 8 | 810000 |

Given below information find out the Sales that has

5000 cpi , 3 percentage discounts, 20 rewards offers

4000 cpi , 8 percentage discounts, 19 rewards offers

Solution:

I opted for a regression model because, when compared to other models, the sales performance is superior.

Predicted Sales for sales prediction 1: 826645.3483822162

Predicted Sales for sales prediction 2: 732680.3648600471

2.Below table contains the bank details of customer – need to predict the how we can offer loan to customer based on the cybill score, Age, insurance, debit card , cards.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Cutomer id | Cards | Debit card | Insurance | Age | Cybill Score | Loan offer |
| 5 | 0 | 1 | 0 | 50 | 34.94 | 0 |
| 3 | 1 | 0 | 0 | 18 | 0.891 | 1 |
| 66 | 0 | 1 | 0 | 5 | 0.33 | 1 |
| 70 | 0 | 1 | 1 | 31 | 0.037 | 0 |
| 96 | 0 | 1 | 0 | 30 | 0.038 | 1 |

Solution:

I lean towards the linear regression model because, in comparison to other models, it exhibits higher accuracy, and the F1 score is reasonably satisfactory.

Accuracy: 0.74

precision recall f1-score support

0 0.76 0.66 0.70 128

1 0.72 0.81 0.76 140

accuracy 0.74 268

macro avg 0.74 0.73 0.73 268

weighted avg 0.74 0.74 0.73 268

3.Below table contains the information of customer and their geographical and personal details , Build the classification models like Decision Tree , Random forest , KNN , kmeans and SVM to classify the data in to proper groups.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| age | workclass | fnlwgt | education | education-num | marital-status | occupation | relationship | race | sex | capital-gain | capital-loss | hours-per-week | native-country | income |
| 39 | State-gov | 77516 | Bachelors | 13 | Never-married | Adm-clerical | Not-in-family | White | Male | 2174 | 0 | 40 | United-States | <=50K |
| 50 | Self-emp-not-inc | 83311 | Bachelors | 13 | Married-civ-spouse | Exec-managerial | Husband | White | Male | 0 | 0 | 13 | United-States | <=50K |
| 38 | Private | 215646 | HS-grad | 9 | Divorced | Handlers-cleaners | Not-in-family | White | Male | 0 | 0 | 40 | United-States | <=50K |
| 53 | Private | 234721 | 11th | 7 | Married-civ-spouse | Handlers-cleaners | Husband | Black | Male | 0 | 0 | 40 | United-States | <=50K |
| 28 | Private | 338409 | Bachelors | 13 | Married-civ-spouse | Prof-specialty | Wife | Black | Female | 0 | 0 | 40 | Cuba | <=50K |
| 37 | Private | 284582 | Masters | 14 | Married-civ-spouse | Exec-managerial | Wife | White | Female | 0 | 0 | 40 | United-States | <=50K |