Data Scientist Evaluation Test

This test is intended to help us understand your data science strengths including **problem-solving,** **technical capabilities and programming skills**, we are interested to learn how you approach problems and give the reasoning for selecting the models you chose.

Please submit your answers in. ipynb notebook or .py formats including analysis, code and models.

**Time**: Take no more than 4 hours.

**Context**: Finding the optimal location to open a new store in a retail or QSR (quick service restaurants) businesses is a challenging problem. The objective is to maximize revenue while not impacting the existing stores of the same retail chain.

**Problem**: Predict the revenue impact on the existing store by a newly opened store in the vicinity of the existing store.

**Data**: A dataset has been provided, containing several features that relate to the daily impact by newly opened store on an existing store. Features are generated through a novel method.

|  |  |
| --- | --- |
| Feature | Description |
| r\_42 | foot traffic feature 17 |
| r\_43 | foot traffic feature 18 |
| r\_44 | foot traffic feature 19 |
| r\_4e | foot traffic feature 20 |
| totalActivitiesRefcircle | Sample activities |
| totalCustomersRefcircle | sample customers |
| dayname | day of the week |
| weekend | is weekend |
| transactCount | number of transactions |
| totalRevenue | total revenue |
| Seats | number of seats |
| Parking\_slots | number of parking slots |
| type\_dtsf | type of the store |
| mtype | market type |
| isholiday | is holiday |
| region | Geographic region/state |

1. The feature descriptions as follows.

|  |  |
| --- | --- |
| Feature | Description |
| directionCode | orientation of the stores |
| r\_11 | foot traffic feature 1 |
| r\_12 | foot traffic feature 2 |
| r\_13 | foot traffic feature 3 |
| r\_14 | foot traffic feature 4 |
| r\_1e | foot traffic feature 5 |
| r\_21 | foot traffic feature 6 |
| r\_22 | foot traffic feature 7 |
| r\_23 | foot traffic feature 8 |
| r\_24 | foot traffic feature 9 |
| r\_2e | foot traffic feature 10 |
| r\_31 | foot traffic feature 11 |
| r\_32 | foot traffic feature 12 |
| r\_33 | foot traffic feature 13 |
| r\_34 | foot traffic feature 14 |
| r\_3e | foot traffic feature 15 |
| r\_41 | foot traffic feature 16 |

1. Response variable

deltaRevenue: the daily revenue impact as a percentage

**Question**: Build a model to predict the daily impact percentage.