# Assignment
## KNN for Regression

The Minkowski Distance -

$$d_M(P,Q) = \left(\sum_{i=1}^{d} \left|x_i^{(P)} - x_i^{(Q)}\right|^n\right)^{1/n}$$

when, $n=1$, Manhattan Distance

| Age | Income (K) | Manhattan Distance |
|---|---|---|
| 21 | 60 | 1 |
| 20 | 55 | 2 |
| 22 | 60 | 0 |
| 22 | 61 | 0 |
| 23 | 65 | 1 |
| 21 | 62 | 1 |
| 25 | 65 | 3 |
| 30 | 70 | 8 |
| 31 | 68 | 9 |
| 22 | ? | |

| Age | Assending order |
|---|---|
| 22 | 0 |
| 22 | 0 |
| 21 | 1 |
| 23 | 1 |
| 21 | 1 |
| 20 | 2 |
| 25 | 3 |
| 30 | 8 |
| 31 | 9 |

For, K=3

Income for age 22

$$\text{Income(mean)} = \frac{60+61+60}{3}$$

$$= 60.33$$