```
Hello world
Sum: 50
Prediction for [0.8, 0] with k=3: 0
Prediction for [0.2, 0.9] with k=3: 1
Prediction for [0.5, 0.5] with k= 1 is: 1
Prediction for [0.5, 0.5] with k= 3 is: 0
Prediction for [0.5, 0.5] with k= 4 is: 1
Prediction for [0.8, 0.2] with k= 1 is: 0
Prediction for [0.8, 0.2] with k= 3 is: 0
Prediction for [0.8, 0.2] with k= 4 is: 0
```

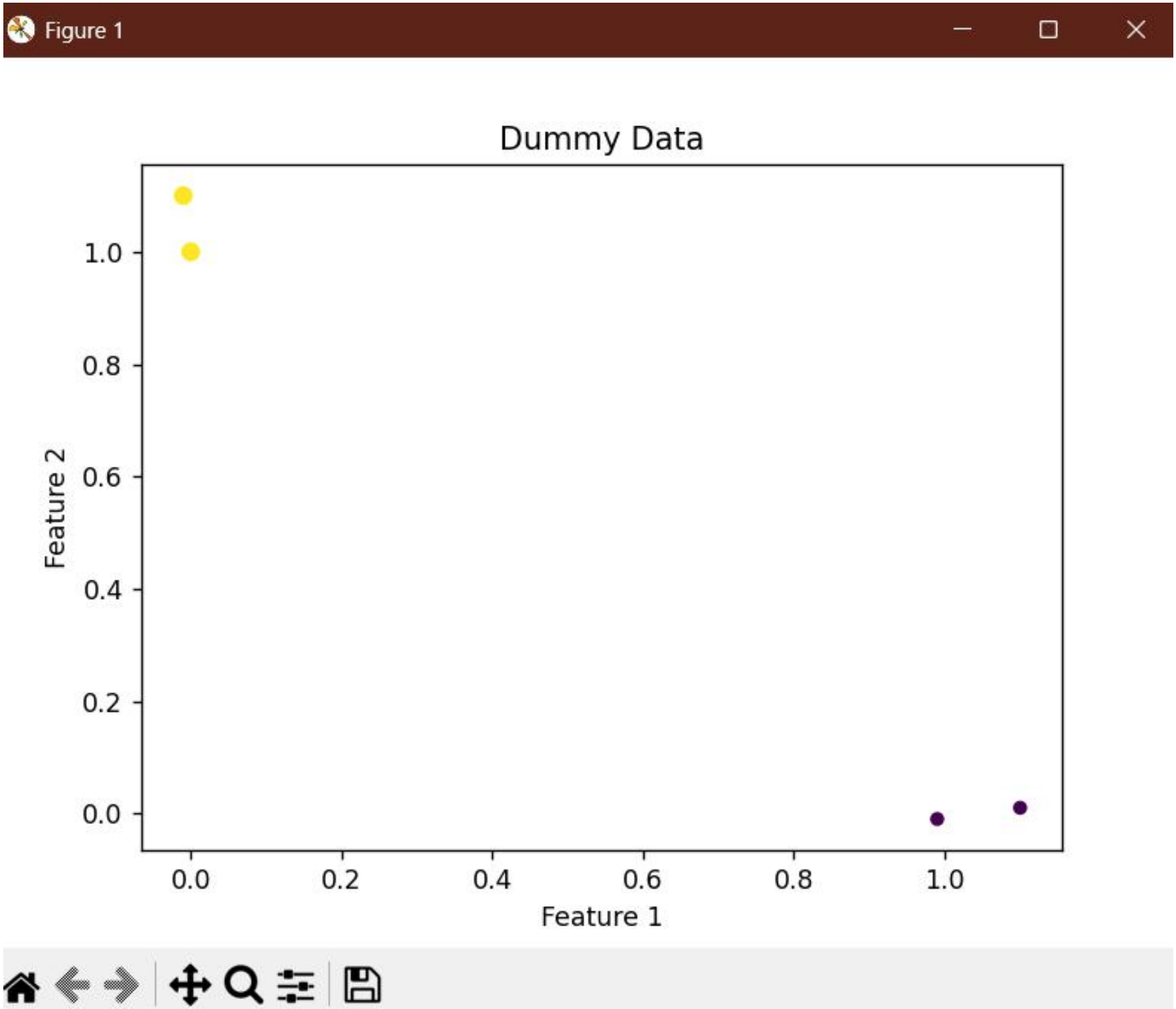
Figure 1
Dummy Data
Feature 2
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
Feature 1

Class Activity (Naive Bayes Classifier)

∴, Yes = 9
No = 5
Total = 14

$P(\text{Buys} = \text{yes}) = \frac{9}{14}$, $P(\text{Buys} = \text{no}) = \frac{5}{14}$.

$P(\text{Age} = \text{youth} \mid \text{yes}) = \frac{2}{9}$
$P(\text{Age} = \text{youth} \mid \text{no}) = \frac{3}{5}$

$P(\text{Income} = \text{medium} \mid \text{yes}) = \frac{4}{9}$
$P(\text{Income} = \text{medium} \mid \text{no}) = \frac{2}{5}$

$P(\text{Student} = \text{yes} \mid \text{yes}) = \frac{6}{9} = \frac{2}{3}$
$P(\text{Student} = \text{yes} \mid \text{no}) = \frac{1}{5}$

$P(\text{Credit rating} = \text{fair} \mid \text{yes}) = \frac{5}{9}$
$P(\text{Credit rating} = \text{fair} \mid \text{no}) = \frac{2}{5}$

$$P(\text{yes} \mid x) \propto \frac{2}{9} \times \frac{4}{9} \times \frac{6}{9} \times \frac{5}{9} \times \frac{9}{14}$$

$$\approx 0.0235$$

$$P(\text{No} \mid x) \propto \frac{3}{5} \times \frac{2}{5} \times \frac{1}{5} \times \frac{2}{5} \times \frac{5}{14}$$

$$\approx 0.0069$$

∴, $0.0235 > 0.0069$.

We predict, Buy = yes.