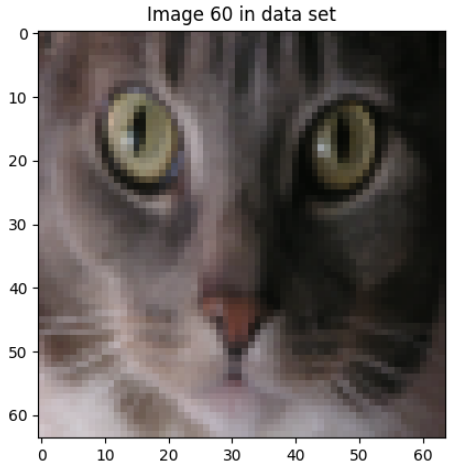
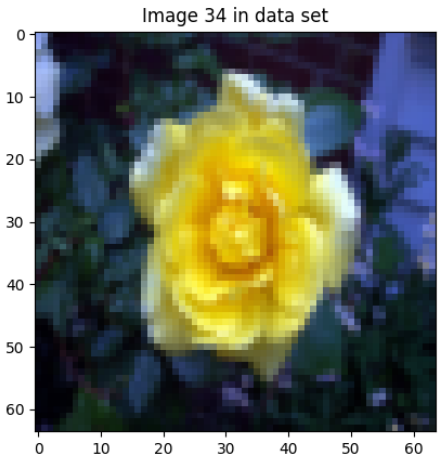
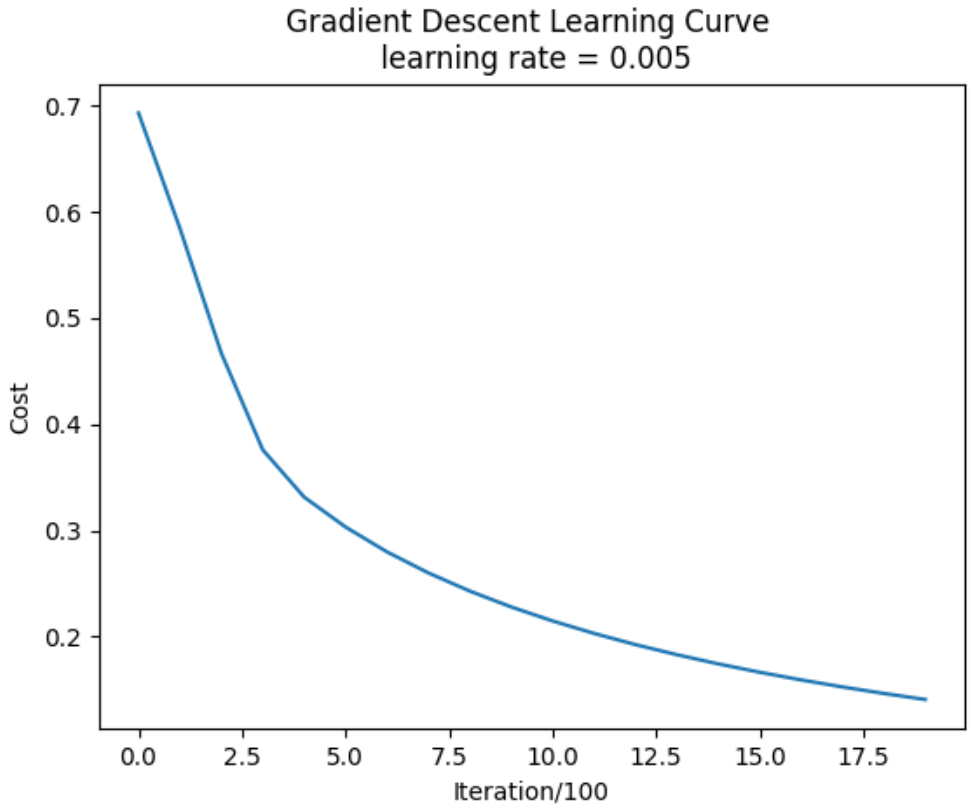
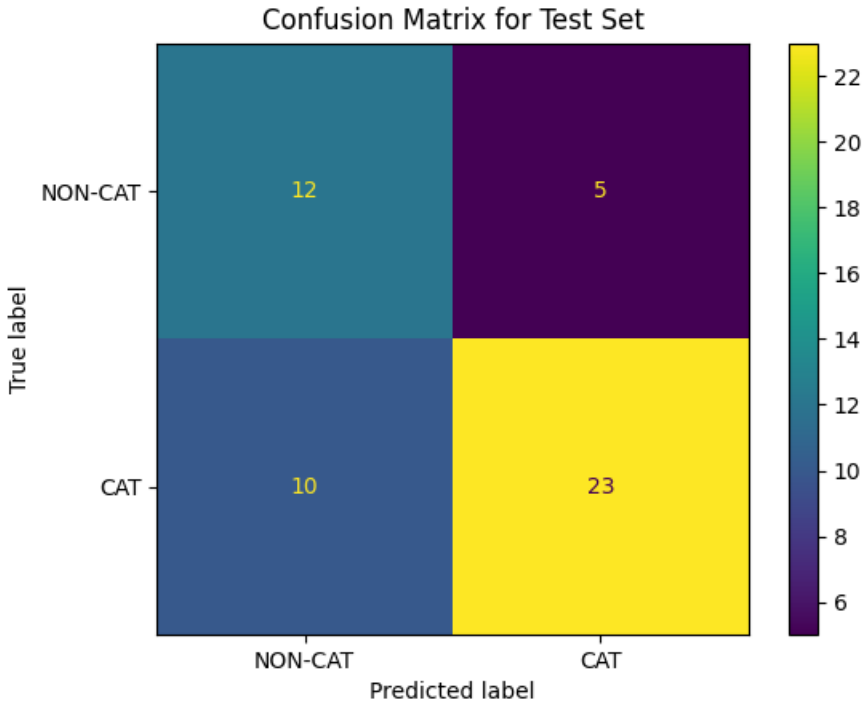
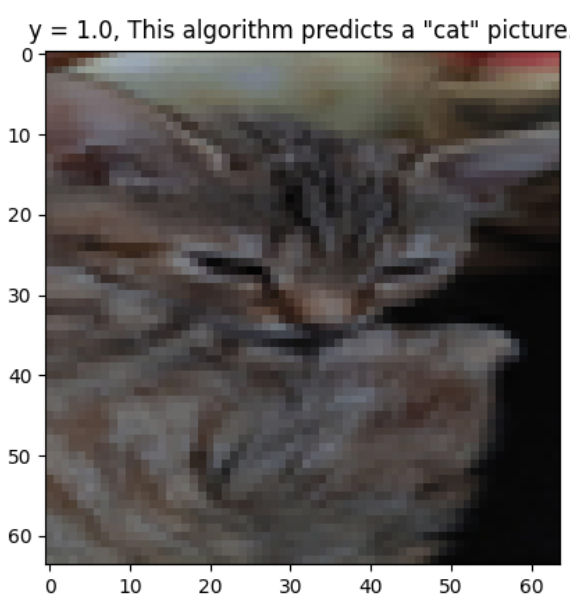


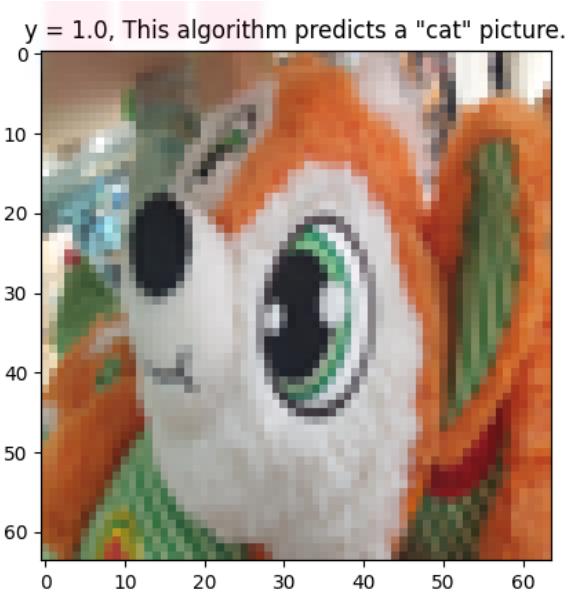



```
Logistic regression model training running...

Cost after iteration 0: 0.693147
Cost after iteration 100: 0.584508
Cost after iteration 200: 0.466949
Cost after iteration 300: 0.376007
Cost after iteration 400: 0.331463
Cost after iteration 500: 0.303273
Cost after iteration 600: 0.279880
Cost after iteration 700: 0.260042
Cost after iteration 800: 0.242941
Cost after iteration 900: 0.228004
Cost after iteration 1000: 0.214820
Cost after iteration 1100: 0.203078
Cost after iteration 1200: 0.192544
Cost after iteration 1300: 0.183033
Cost after iteration 1400: 0.174399
Cost after iteration 1500: 0.166521
Cost after iteration 1600: 0.159305
Cost after iteration 1700: 0.152667
Cost after iteration 1800: 0.146542
Cost after iteration 1900: 0.140872


Logistic regression model training was finished



Let us take a look to the evolution of the gradient descent algorithm:



The scores for predictions are:
                                 f1_score  accuracy_score  precision_score  recall_score
Logistic Regression on Train Set  0.986111        0.990431         0.986111      0.986111
Logistic Regression on Test Set   0.754098        0.700000         0.821429      0.696970
```


Gradient Descent Learning Curve
learning rate = 0.005
Cost
0.7
0.6
0.5
0.4
0.3
0.2
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
Iteration/100


Confusion Matrix for Test Set
NON-CAT
CAT
True label
12
5
10
23
NON-CAT
CAT
Predicted label
22
20
18
16
14
12
10
8
6


y = 1.0, This algorithm predicts a "cat" picture.
0
10
20
30
40
50
60
0
10
20
30
40
50
60


y = 1.0, This algorithm predicts a "cat" picture.
0
10
20
30
40
50
60
0
10
20
30
40
50
60