1. Minimum threshold at which there is no error.

Ans

5 is the minimum threshold before 5 (0,1,2,3,4) we don't get our desired output.

2. Bais and weight printed for each training cycle.

Ans

Need to add last 2 line of code for that :-

```
def train(self,training_inputs,labels):
    for _ in range(self.threshold):
        for inputs,label in zip(training_inputs,labels):
            prediction = self.predict(inputs)
            self.weights[1:] += self.learning_rate * (label-prediction)*inputs
            self.weights[0] += self.learning_rate * (label-prediction)
            print("Weight:",self.weights[1:])
            print("Bias:",self.weights[0])
```

Output :-

```
Bias: -2.0
Weight: [2. 1.]
Bias: -2.0
Weight: [2. 1.]
Bias: -2.0
Weight: [2. 1.]
Bias: -2.0
```

3. What is a effect of change in learning rate?

Ans

The values of Bias and Weight changes to a remarkable extent ,else there is no change in output.

```
Bias: -2.0
Weight: [2. 1.]
```

4. Take a 3 input and train for 6 input set and predict for rest 2.

Ans:

```
import numpy as np
from perceptron2 import Perceptron

training_inputs = []
training_inputs.append(np.array([1,1,1]))
training_inputs.append(np.array([1,1,0]))
training_inputs.append(np.array([1,0,1]))
training_inputs.append(np.array([1,0,0]))
training_inputs.append(np.array([0,1,1]))
training_inputs.append(np.array([0,1,0]))


labels  = np.array([1,0,0,0,0,0])

perceptron = Perceptron(3)
perceptron.train(training_inputs,labels)

inputs = np.array([0,0,1])
print(perceptron.predict(inputs))

```

There were changes in input and output to the following input is :-

```
In [48]: runfile('/home/thisisbrijraj/Documents/
PythonProjects/RoyalAI/Perceptron2/run2.py',
wdir='/home/thisisbrijraj/Documents/PythonProjects/
RoyalAI/Perceptron2')
Reloaded modules: perceptron2
0
```

The correct output was predicted by perceptron with threshold=50 and learning_rate=0.001