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ECE 1395 – Dr. Dallal

Assignment 3

2/5/2023
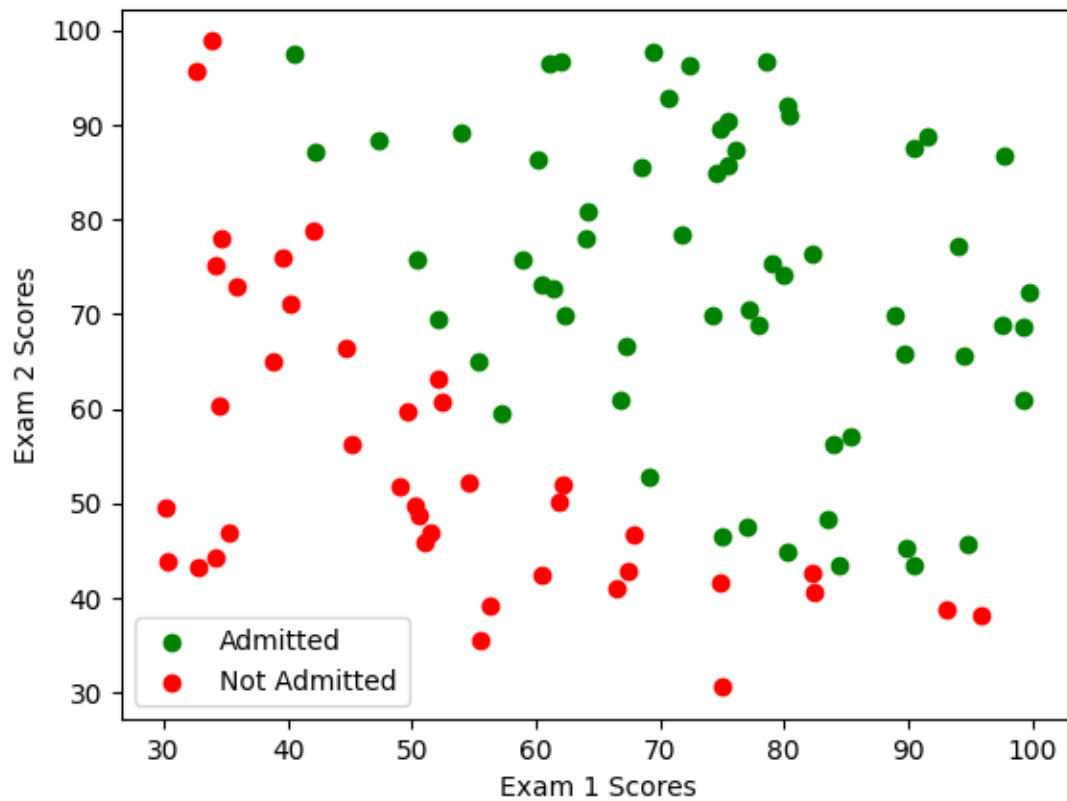
Question 1: Logistic Regression

Part a:

- Text output:
    - The size of feature matrix X is: (100, 3)
    - The size of feature label vector is: (100, 1)

Part b:

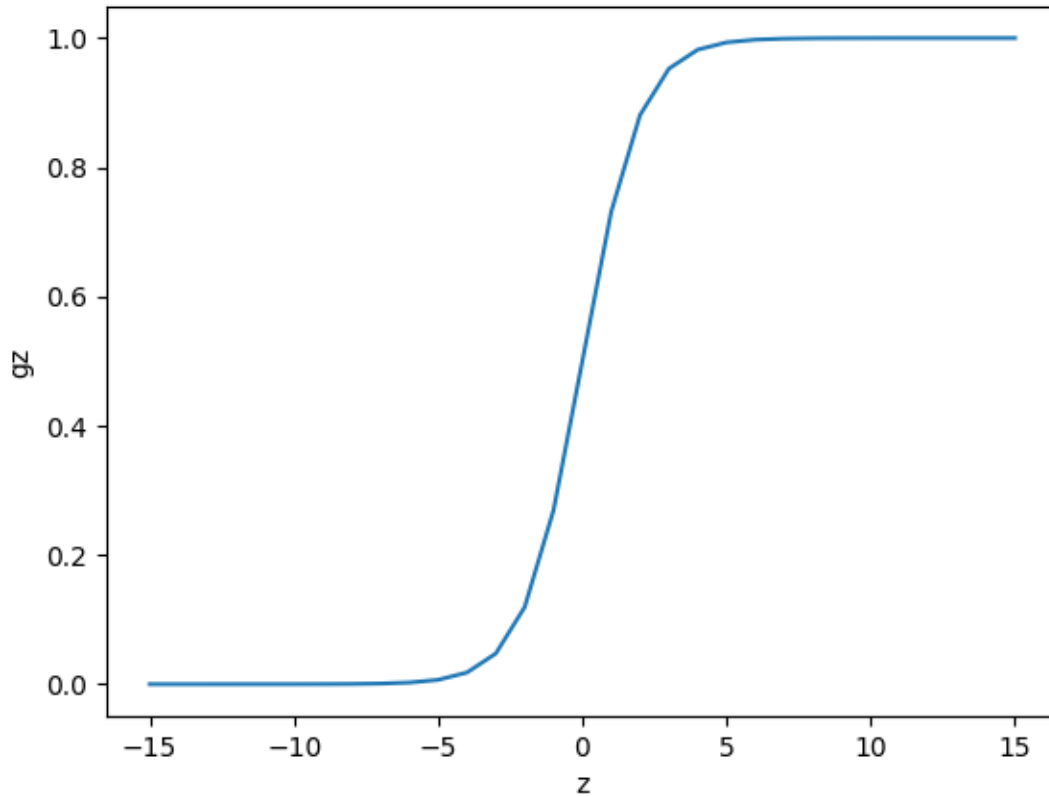- Output:

(ps3-1-b.png)

Part d:

- Output:

(ps3-1-c.png)

- Text response:
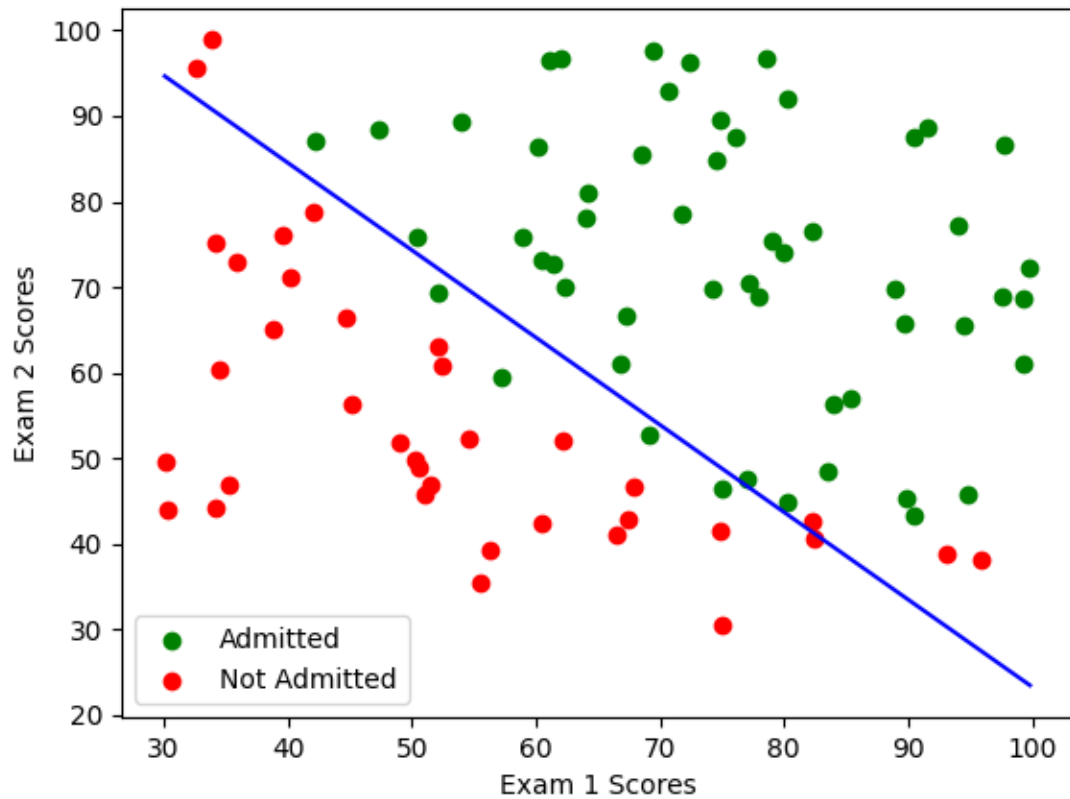 - Figure ps3-1-c reaches an output of 0.9 with an input of about 2.5

Part e:

- Text output:
  - The value of the cost J for the toy dataset is: [[0.69314718]]

Part f:

- Text output:
  - The optimal parameters for theta are: [-24.69021561 0.20094076 0.19706876]
  - The cost at the optimized theta values is: 0.2066785856270287

Part g:

- Output:

(ps3-1-f.png)

Part i:

- Text output:
    - The admission probability is: 0.7752999076910132
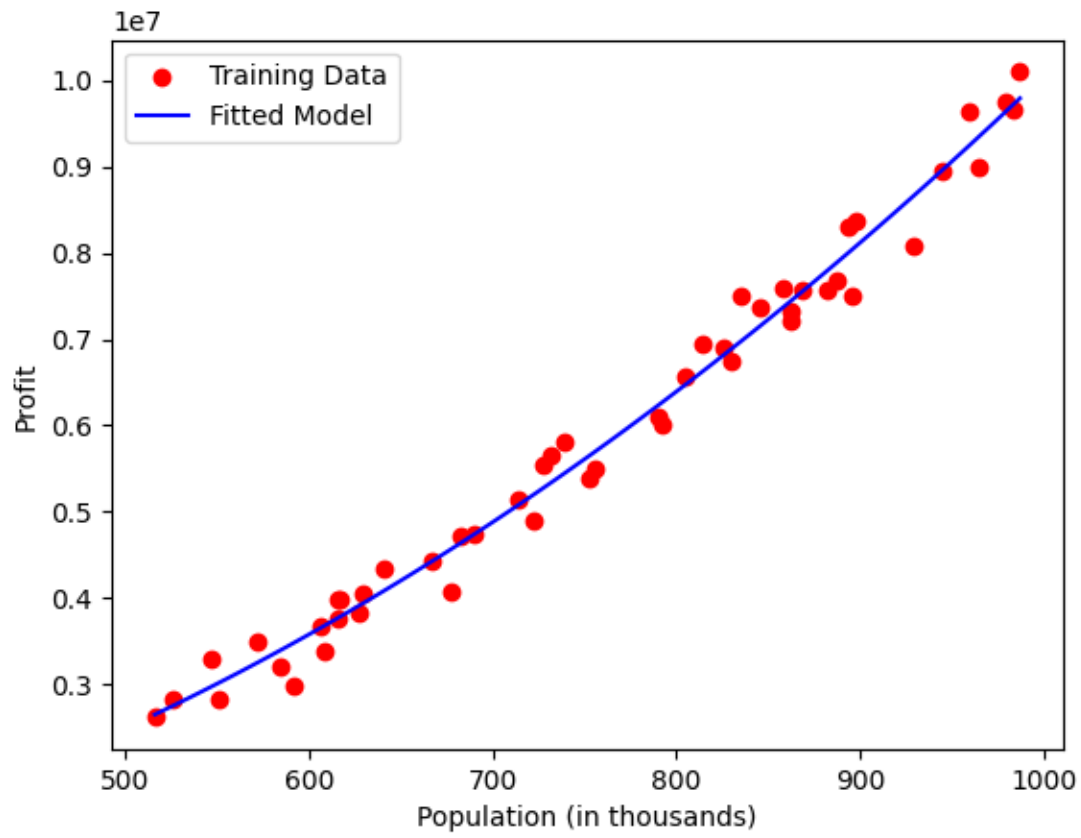   - The admission decision should be: Admitted

Question 2: Non-Linear Fitting

Part a:

- Text output:
    - The learned model parameters for theta are: [[2.19256629e+05], [-7.75886157e+02], [1.06170508e+01]]

Part b:

- Output:

(ps3-2-b.png)