**Question No 5**

**Part(a)**

***Linear Regression Model:***

optimized variables = [[-1.60729045e+02] [ 8.03244175e-02]]

y = mx + c

y= 8.03244175e-02(x) + -1.60729045e+02

plot:

![Chart, line chart

Description automatically generated]()

**Part(b)**

debt at 2020 = [1.52627804]

from internet sources I got the debt at 2020

**Total Student Loan Debt:** $1.56 trillion

Which is very close to the model prediction

Part(c)

debt at 2041 = [3.21309081]

according to the linear model fit given in the plot above I am pretty much confident on the result.