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Lab 10 Analysis
CS 162

Within my Fibonacci program I have found that the iterative function works faster than the revursive function. In my analysis it seems that the recursive function takes longer because it needs to go so much deeper into itself to call itself more and more times. As the number grows, the recursive function continues to dive deeper into itself to run the Fibonacci sequence. Although the iterative time tends to jump around towards the larger numbers, overall, we can see how the recursive time continues to increase as the numbers get larger. We can see a larger time difference when the numbers get higher and start to see a large discrepancy between the two once we reach those higher numbers. See below for the measured analysis:

N--Recursive_time--Iterative_time

10, 0, -3.4e-05

11, 0, -5.5e-05

12, 0, -8.9e-05

13, 0, -0.000144

14, 0, -0.000233

15, 0, -0.000377

16, 0, -0.00061

17, 0, -0.000987

18, 0, -0.001597

19, 0, -0.002584

20, 0, -0.004181

21, 0, -0.006765

22, 0, -0.010946

23, 0, -0.017711

24, 0, -0.028657

25, 0, -0.046368

26, 0, -0.075025

27, 0, -0.121393

28, 0.01, -0.186418

29, 0.01, -0.307811

30, 0.03, -0.484229

31, 0.04, -0.79204

32, 0.07, -1.27627

33, 0.12, -2.05831

34, 0.2, -3.32458

35, 0.32, -5.38289

36, 0.53, -8.69746

37, 0.86, -14.0704

38, 1.39, -22.7678

39, 2.25, -36.8382

40, 3.64, -59.606

41, 5.88, -96.4542

42, 9.52, -156.06

43, 15.39, -252.524

44, 24.93, -408.564

45, 40.33, -661.079

46, 65.21, -1069.69

47, 105.43, -1730.88

48, 170.53, 1494.28

49, 275.91, -236.65

50, 446.95, 1258.14