

BSc (Hons) in Information Technology Year 2

Data Structures and Algorithms – IT2070

Tutorial 5 – Algorithm Analysis

Semester 2, 2023

Question 1

Analyze the running time of the following program fragments assuming a RAM model of computation. State any assumptions or definitions you make.

a)
$$i = 0$$

$$i = 0$$

$$while (i <= 4)$$

$$print(i)$$

$$print(i)$$

$$i = i + 1$$

$$i = i + 8$$

c)
$$i = 0 \\ while (i < 4) \\ j = 1 \\ while (j <= 3) \\ print (j) \\ j = j + 1 \\ i = i + 1$$

$$i = 0 \\ j = 1 \\ while (i < 4) \\ print (i) \\ while (j <= 3) \\ print (j) \\ j = j + 1 \\ i = i + 1$$

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e ) j = 1 while (j \le 10) j = j + 1 a = 1 while (a \le 3) a = a + 1
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