Dmitri Stanchevici

Unit 3, Some Computerese + Module 1

Ex. c.0

Graphical user interface, text, application, email

Description automatically generated

Ex. 1.5

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Before loop | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **HEAP** | | | | | | **GLOBAL** | | | ADDRESS |  | 120 | 124 | 128 | 132 | … |  | 680 | | VALUE |  | 0 | 0 | 0 | 0 |  |  | 120 | |  |  | A[0] | A[1] | A[2] | A[3] | … |  | A | |
| i=0 | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | ADDRESS |  | 120 | 124 | 128 | 132 | … |  | 680 | | VALUE |  | 0 | 0 | 0 | 0 |  |  | 120 | |  |  | A[0] | A[1] | A[2] | A[3] | … |  | A | |
| i=1 | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | ADDRESS |  | 120 | 124 | 128 | 132 | … |  | 680 | | VALUE |  | 0 | 1 | 0 | 0 |  |  | 120 | |  |  | A[0] | A[1] | A[2] | A[3] | … |  | A | |
| i=2 | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | ADDRESS |  | 120 | 124 | 128 | 132 | … |  | 680 | | VALUE |  | 0 | 1 | 4 | 0 |  |  | 120 | |  |  | A[0] | A[1] | A[2] | A[3] | … |  | A | |
| i=3 | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | ADDRESS |  | 120 | 124 | 128 | 132 | … |  | 680 | | VALUE |  | 0 | 1 | 0 | 6 |  |  | 120 | |  |  | A[0] | A[1] | A[2] | A[3] | … |  | A | |

Ex. 1.10

Probability an array of length 5 is sorted in **increasing order** is: **0.0087**

Probability an array of length 5 is sorted in both increasing and decreasing order: **0.01787**

Ex. 1.12

1. The probability of shared birthday for 10 people is **0.1149.**
2. For a better than 50% chance (p=0.5327) of seeing the same birthday, at least **24** people are needed.