# Homework 3 Iteration

1. Write a pseudocode algorithm using a FOR loop in to read five lowercase letters and output the largest and smallest. (a is less than b). [6]

2. Write a pseudocode algorithm that asks a user for a password. They are allowed three attempts to type the correct password, which is “Tues1212”.

If they type the correct password, output “Password accepted”, otherwise output “Password rejected”. [6]

# 3. (a) Complete the trace table below with the values supplied.

sunlight 🡨0

maxHours 🡨0

minHours 🡨100

totalSunlight 🡨0

REPEAT

sunlight 🡨INPUT

IF sunlight >maxHours Then

maxHours 🡨sunlight

ENDIF

IF sunlight < minHours THEN

minHours 🡨 sunlight

ENDIF

totalSunlight 🡨 totalSunlight + sunlight

UNTIL sunlight = -1

OUTPUT maxHours

OUTPUT minHours

OUTPUT totalSunlight

Test Data: 8 7 5 6 -1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sunlight** | **maxHours** | **minHours** | **TotalSunlight** | **Output** |
| 0 | 100 | 0 | 0 |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

# [4]

# (b) What is the problem with the algorithm above? [2]

# (c) This time the algorithm uses an entry condition WHILE loop. Complete the trace table to see the difference between the two.

Sunlight 🡨 0

maxHours 🡨 0

minHours 🡨 100

TotalSunlight 🡨 0

Sunlight🡨 INPUT

While sunlight <> -1

IF sunlight >maxHours THEN

maxHours 🡨sunlight

END IF

IF sunlight < minHours THEN

minHours 🡨 sunlight

ENDIF

TotalSunlight 🡨sunlight + TotalSunlight

sunlight 🡨INPUT

END WHILE

OUTPUT maxHours

OUTPUT minHours

OUTPUT TotalSunlight

Input data: 8 7 5 6 -1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sunlight** | **maxHours** | **minHours** | **TotalSunlight** | **Output** |
| 0 | 0 | 100 | 0 |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

[2]

[Total 20 Marks]