Exam Questions

Files

File handling

1 (a) An algorithm will output the last three lines from a text file Result.txt

The lines need to be output in the same order as they appear in the file.

Assume:

- Three variables LineX, LineY and LineZ will store the three lines. These are of type string and all three variables have been initialised to an empty string.
- The file exists and contains **at least** three lines.

The algorithm to output the lines is expressed in eight steps.

Complete the steps.

1. Open the file .....
2. Loop until .....
3. ..... and store in ThisLine
4. Assign LineY to LineX
5. Assign LineZ to LineY
6. Assign ThisLine to LineZ
7. After the loop, ...
8. Output LineX, LineY, LineZ

Answer

Mark Scheme and Guidance

One mark per emboldened part:

1. Open the file **(Result.txt) in read mode**
2. Loop until **EOF(Result.txt) // EOF // end of file**

3. **Read a / the / next line (from the file)** and store in ThisLine
4. Assign LineY to LineX
5. Assign LineZ to LineY
6. Assign ThisLine to LineZ
7. After the loop, **close the file (Result.txt)**
8. Output LineX, LineY, LineZ

(4 marks)

(b) The requirement changes, and the algorithm will now output three lines from the file, starting from a **given** line number.

The modified algorithm will be implemented as a function which will:

- be called with an integer parameter representing the given line number
- output three lines, starting at the given line
- return TRUE if the 3 lines are output, or FALSE if it was not possible to output the 3 lines.

Describe the changes that need to be made to **steps 2 to 8** of the algorithm given in part **(a)**.

Answer

Mark Scheme and Guidance

Two loop solution

One mark per point:

1. Loop until given line number (-1) / <parameter> (-1) (lines have been read)
2. ... if end of file is reached then return FALSE
3. Loop for three lines // Read three lines // Repeat of 4 and 5 for three lines
4. Read a line and output it
5. ... if end of file is reached then return FALSE
6. After outputting the (required) lines return TRUE
7. Ordering of lines no longer needed

Max 4 marks

Alternative solution

One loop solution mark scheme that reads to given line number + 2

One mark per point

1. Loop until given line number + 2 / <parameter> + 2 (lines have been read)
2. **OR** end of file is reached

3. Return FALSE if EOF reached
4. Read a line from the file **in the loop**
5. Continue to order the last three lines read **in the loop** // Steps 4 to 6 stay the same
6. (If FALSE has **not** been returned) output the required three lines (in the correct order)
7. … **and** Return TRUE

Max 4 marks

(1 mark)