SdPd/java Lab Exam 2

Objective: Galway Helpdesk Usage and Costs

Galway Helpdesk maintains helpdesk usage and cost data using a sequential text file*.*

1. **Download** the lab exam 2 **zip** file and extract the folder, **Save** on the desktop (**No USBs)**
   – Rename the **LastNameFirstNameLabEx2** folder and java file as per your own name
   – E.g. **AgnewGerryLabEx2** folder and **AgnewGerryLabEx2**.java program file
   – To be **verified** by your lab supervisor
   – Remember to rename the starter **class name** as per your java program file name

2. Add your **Program Id, Name** & **Program Description** as comments at the top of the program

3. **10%** of the Lab Exam marks are for the Algorithm sheet (enter your name at the top of the first page) which must be submitted at the end of the lab exam

4. **Warning:** marks will be deducted for **bad programming practices** such as:
   – Lacking meaningful variable names, white-space, indentation, etc.
   – Ensure redundant code is deleted prior to program submission
   – Ensure that non-working code is commented out prior to program submission

5. **Input File layout:** each record consists of the following details about each helpdesk account:

– Account Id (int)	– e.g. 2000
– Organisation Name (String – max 10)	– e.g. Acme
– Contact First Name (String – max 10)	– e.g. Gerry
– Contact Last Name (String – max 10)	– e.g. Agnew
– Account Plan (char) – either E, S, P, B or F	– e.g. b/B
– Hours Allowed by account plan (int)	– e.g. 10
– Customer Helpdesk Usage (int) – 3 weeks values	– e.g. 3, 4, 4

6. **Input File Contents:** – see Screenshot 1 on page 3
   – Locate the input text file “HelpdeskUsage.dat” contained in your renamed Lab Exam 2 folder
   – Verify the input text file contents using Note Pad (or equivalent)

7. **Constants / Variables:**
   Declare constants & variables (inc. file objects) as appropriate with meaningful names & types
   – Ensuring that the file layout is highlighted and not mixed with other ordinary variables

8. **Initialise:**
   Initialise any necessary variables especially counts and totals (but not all the variables)

9. **Main Processing / File Input:**
   – Using an EOF controlled **while** loop read each customer from the file until there are no more records left to be processed
   – Read each field in the order defined by the record layout using an appropriate method according to the field type
   – Using an inner **for** loop read the 3 weekly helpdesk hours used for each organisation

10. **Header Output:** – see Screenshot 2 on page 3
    Display the program headers including **your name** aligned as specified using println ( ) rather than printf ( ) statements

11. **Line Output:** – see Screenshot 2 on page 3
    Display formatted customer details for **paying** customers excluding those on a Free Trial:
    – Account Id, Contact Name, Account Plan, Hours Allowed, Hours Used (*4), Sum Hours, and overall helpdesk Cost
    – Contact name is displayed with Last Name preceding First Name separated with a comma concatenated into a single column
    – Customers with an f/F(Free Trial) for account plan are not processed/displayed
    – The Account Plan character is mapped to the Plan name using a **switch** statement
    – E.g. E/Essential, S/Standard, p/Professional, b/Business otherwise Trial
    – Plan Costs are as follows – E/€15.00, S/€25.00, P/€35.00 and B/€50.00
    – The Helpdesk cost is calculated as the standard cost per plan added to any additional costs which are based on the number of hours used over the hours allowed for that plan.
    – The rate is €8.00 per hour for every hour over the account plan allowed hours
    – Otherwise, display unformatted customer details if unable to format the output

12. **Footer Output:** – see Screenshot 2 on page 3
    After all the data has been processed display the following footers:

    – Active and Free Trial counts
    – Account Plan counts (Essential, Standard, Professional, Business)
    – Organisation name with the cheapest helpdesk costs for the 3 week period
    – Organisation name with the most expensive helpdesk cost for the 3 week period
    – Number of high cost records above the limit inputted through the input dialog box

13. **Output Report:** – see screenshot 3 on page 4
    Output the screen contents to a Report file called “HelpdeskUsageReport.dat”

14. **Output High Helpdesk Usage File:** – see screenshot 4 on page 4
    – Write account data (as indicated) using the original input file layout, plus the sum and cost to a new output text file called “HighHelpdeskUsage.dat”
    – Only for costs that equal or exceed the Helpdesk Cost limit entered using an Input dialog

15. **Input and Message Dialogues:** – see screenshots 5 & 6 on page 4
    – Input the Find Contact Last name and Helpdesk Cost Limit using 2 seeded **Input dialogs** at the start of the program (with Last Name = Your Last Name and Helpdesk Limit = 60.00)
    – Output the corresponding Lastname Found message summary if the Contact last name is matched, case insensitively regardless of their account plan, using a **Message dialogue** with appropriate “Your Name” Title and Icon
    – Otherwise, show an appropriate warning if the Customer last name entered is not found

16. **Close Files:**
    Close the file objects, especially any newly created Output files to ensure they are saved permanently, otherwise they might appear empty

17. **Save – The End:**
    – When finished Save and Exit TextPad
    – Zip (R/click: Zip format – **not RAR or 7 Zip**) your **LastNameFirstNameLabEx2** folder
    – Upload your **LastNameFirstNameLabEx2** zip file to the Moodle link provided
    – To be **verified** by your supervisor **before** you **submit** the zip file
    – Sign the **attendance sheet** before you exit the lab
    – Submit the named **Algorithm** sheet before you exit the lab

Helpdesk Usage Input Text File – Screenshot 1

HelpdeskUsage - Notepad

File Edit Format View Help

```
2000 ACME         Gerry          Agnew B    10     3     4     4
2001 Steam        Lisa           Smith E     3     2     0     1
2002 Valve        Gerry          Jones E     3     2     1     2
2003 EA           Jim          Johnson B    10     3     3     4
2004 Saleswatch   John           Agnew F    10     2     3     4
2005 Chamber      Sharon         Smith S     5     2     3     1
2006 UpSales      Sheena         Smyth B    10     0     3     4
2007 Insight      Tim            Homes B    10     2     3     4
2008 SalesExec    Steve          Smith s     5     2     0     4
2009 SalesSeek    Alan           agnew F    10     2     4     5
2010 Audible      Andrew          Trim P     8     2     3     4
2011 iStore       Alan           Walsh B    10     3     3     2
2012 iStock       Linda        Brynes P     8     4     3     1
2013 SalesTech    Liam           Burns S     5     2     1     4
```

Screen Output – Screenshot 2

C:\Windows\system32\cmd.exe

```
Gerry Agnew - Lab Exam 2 (December 2015)

 Id  Contact Name  Org Name     Plan         Allowed   Wk1  Wk2   Wk3  Sum   Cost
==========================================================================================
2000 Agnew,Gerry   ACME         Business        10     3     4     4   11    58.00
2001 Smith,Lisa    Steam        Essential        3     2     0     1    3    15.00
2002 Jones,Gerry   Valve        Essential        3     2     1     2    5    31.00
2003 Johnson,Jim   EA           Business        10     3     3     4   10    50.00
2005 Smith,Sharon  Chamber      Standard         5     2     3     1    6    33.00
2006 Smyth,Sheena  UpSales      Business        10     0     3     4    7    50.00
2007 Homes,Tim     Insight      Business        10     2     3     4    9    50.00
2008 Smith,Steve   SalesExec    Standard         5     2     0     4    6    33.00
2010 Trim,Andrew   Audible      Profession       8     2     3     4    9    43.00
2011 Walsh,Alan    iStore       Business        10     3     3     2    8    50.00
2012 Brynes,Linda  iStock       Profession       8     4     3     1    8    35.00
2013 Burns,Liam    SalesTech    Standard         5     2     1     4    7    41.00

Active Customers:  12   Free Trial:   2     Essential:  2
        Standard:   3 Professional:   2     Business:   5

Lowest Helpdesk Cost:  15.00 used by: Steam

Highest Helpdesk Cost: 58.00 used by: ACME

5 Helpdesk Costs above the limit >=  50.00 Output
```

Screen Output/Mirrored Report File – Screenshot 3

HelpdeskUsageReport - Notepad

File Edit Format View Help

```
Gerry Agnew - Lab Exam 2 (December 2015)

 Id  Contact Name  Org Name     Plan        Allowed   Wk1   Wk2   Wk3  Sum   Cost
==========================================================================================
2000 Agnew,Gerry   ACME         Business        10     3     4     4   11   58.00
2001 Smith,Lisa    Steam        Essential        3     2     0     1    3   15.00
2002 Jones,Gerry   Valve        Essential        3     2     1     2    5   31.00
2003 Johnson,Jim   EA           Business        10     3     3     4   10   50.00
2005 Smith,Sharon  Chamber      Standard         5     2     3     1    6   33.00
2006 Smyth,Sheena  UpSales      Business        10     0     3     4    7   50.00
2007 Homes,Tim     Insight      Business        10     2     3     4    9   50.00
2008 Smith,Steve   SalesExec    Standard         5     2     0     4    6   33.00
2010 Trim,Andrew   Audible      Profession       8     2     3     4    9   43.00
2011 Walsh,Alan    iStore       Business        10     3     3     2    8   50.00
2012 Brynes,Linda  iStock       Profession       8     4     3     1    8   35.00
2013 Burns,Liam    SalesTech    Standard         5     2     1     4    7   41.00

Active Customers:  12   Free Trial:   2     Essential:  2
        Standard:   3 Professional:   2     Business:   5

Lowest Helpdesk Cost:  15.00 used by: Steam

Highest Helpdesk Cost: 58.00 used by: ACME

5 Helpdesk Costs above the limit >=  50.00 Output
```

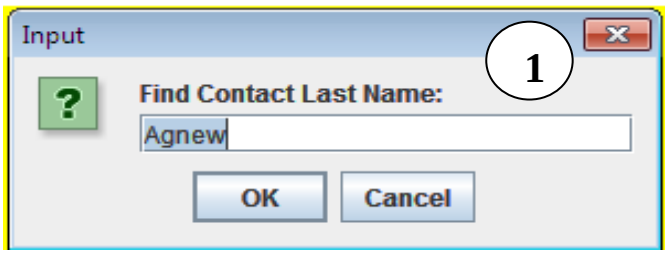
New High Helpdesk Usage Output File – Screenshot 4

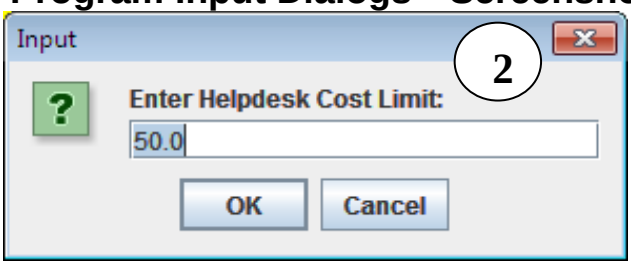
HighHelpdeskUsage - Notepad

File Edit Format View Help

```
2000 ACME          Agnew,Gerry        Business        10   90.00
2003 EA            Johnson,Jim        Business        10   82.00
2007 Insight       Homes,Tim          Business        10   74.00
2008 SalesExec     Smith,Steve        Standard         5   65.00
2010 Audible       Trim,Andrew   Professional          8   75.00
2012 iStock        Brynes,Linda  Professional          8   67.00
```

Start of Program Input Dialogs – Screenshot 5





End of Program Output Dialog – Screenshot 6