UNIVERSITY OF SWAZILAND
FINAL EXAMINATION MAY, 2015 (SEM-II)

Title of the Paper : STRUCTURED PROGRAMMING - II

Course Number : CS244
Time Allowed   : Three (3) Hours

Instructions: This exam has pages from 1 to 3. The **Exam userid, password, tree, context and server name** will be provided by the chief invigilator.

1. Write pseudo codes and file specifications of all the files in the root of your network drive F:\ in your folder.
2. Submit folder, signed listings of printed programs and report files.
3. Use the last 10 minutes to check your submissions (which includes IPO, pseudo codes, file specifications, signed listings of your programs and report files)

Read the paper carefully and completely before starting to work on the problem.

The names of program and report files should be –

```
------.cpp (Program file) and
------.TXT (Report file)
```

The dashes in file names are six digits of your UNISWA id.

Special requirements: For each student

1. **A networked PC with working C++ system.**
2. **An accessible secure network disk (F:\) & Printing facility.**

This paper should not be opened until permission has been granted by the invigilator.

MARKING SCHEME: Pseudo code (30 %), Results (20 %), Program (50 %)

PROBLEM: Information about monthly sales of agents of DLAMINI FURNISHERS is given in a text file 'DATA2015.TXT'. Each record of this file has the following -

Agent surname	15 characters
Agent Initials	10 characters
Agent Id	6 digits - long integer
Count of orders	2 digits - integer
Sales Amount	Floating (------ . --) 6 digits dot 2 digits

Each field has been separated by a space character and Agent Id in sentinel record is zero. Example of a record -

```
BENNET          L.A.         120786 35 182270.00

0         1         2         3         4 {ARE COLUMN NOS}
12345678901234567890123456789012345678901
```

Write pseudo codes and a corresponding well documented and properly indented program in C++ that does the following –

1. Reads in all the data from 'DATA2015.TXT'.
2. Computes the Commission and Tax for each agent and displays the information on a report file ('------.TXT'). The summary should have the count of orders, count of agents, totals of sales amount, commission and tax.
3. The six dashes in the report file name are six digits of your UNISWA id number.

NOTES:

1. Commission is computed by adding the base (BC) and performance (PC) commissions.
2. The base commission (BC) is 100 times the count of orders only if count of orders is greater than 5, it is zero otherwise.
3. The performance commission (PC) is computed as follows -

- PC is 15% of the sales amount if sales amount is 10000 or more,
- PC is 10% of the sales amount if sales amount is below 10000, but above 5000,
- PC is 5% of the sales amount if sales amount is 5000 or below and
- PC is zero if sales amount is 1000 or below.

4. The tax is 33 % of the commission.
5. Write IPO of a function to find the commission using count of orders and sales amount. Use this function in your calling program.

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The 'DATA2015.TXT' file is in F:\ and its contents are -

```
DLAMINI      E.           100044 03 10100.00
SHONGWE      M.J.         120785 15 18227.00
BENNET       L.A.         120786 35 182270.00
THWALA       D.M.         120251 10 14321.50
BEATRIC      S.P.         120786 15 18227.00
DVUBA        M.           120197 25 160059.00
SIBISI       J.N.         120630 18 18560.00
VILAKATI     K.           120246 10 5410.00
SISA         D.M.         120240 16 8800.00
SENTINEL     DATA         000000 00 00000.00
```

The report lay out should be —

REPORT PRODUCED BY THE PROGRAM OF

<YOUR UNISWA ID>

                    DLAMINI FURNISHERS, MBABANE
              SALES AGENTS COMMISSION REPORT, MAY 2015

==
ID   SURNAME   ORDER SALES   COMMISSION   TAX
                          COUNT AMOUNT
==

------- ---------------- --   ------.--   ------.-   ------.
------- ---------------- --   ------.--   ------.-   ------.
------- ---------------- --   ------.--   ------.-   ------.

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SUMMARY
=======

COUNT OF ALL ORDERS =   ----

COUNT OF AGENTS   =   ----

TOTAL SALES AMOUNT   =   --------.--

TOTAL COMMISSION   =   --------.--

TOTAL TAX   =   --------.--

<END OF EXAMINATION PAPER>

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