HIT365 C Programming

Assignment 1

This assignment is worth 15% of the total unit. Marks are given for clarity, presentation, accuracy and also concise and efficient programs. **This is an individual assignment. If you found guilty of plagiarism, a failure grade will be awarded.**

The due date of this assignment is **30th April 2023**. *Please submit your answers in* **two files** (*one is a *.pdf file containing a pseudocode and a flow chart, and another is a *.c file containing a c program*) *using Learnline (in the "Submit Here" tab). Late submissions incur a 10% penalty per day. Make sure comments are included in your programs so that the marker can understand your program.* **Make sure your program can run in Microsoft Visual Studio available from VMware Horizon if you are using another c compiler. Marks will be deduced if your program cannot run in Microsoft Visual Studio.**

Factory A pays its employees differently depending on his/her position within the organization.
- Managers receive a fixed weekly salary.
- Hourly workers receive a fixed hourly wage for up to the first 40 hours they work and remaining hours are paid 1.5 times their hourly wage i.e. for overtime hour work.
- Commission workers receive a basic salary of $250 plus 5.7% of their gross weekly sales for Item A, 6.4% of their gross weekly sales for Item B and 7.2% of their gross weekly sales for Item C.
- Pieceworkers receive a fixed amount of money for each of the items they produce - each pieceworker in Factory A works on a maximum of three types of items. Item 1 pays $22.50 per item, Item 2 pays $24.50 per item and Item 3 pays $26.00 per item.

Write a program to assist the payroll secretary in computing the weekly pay for each employee. The number of employees varies each week. Each type of employee has its own pay code: Managers have paycode 1, hourly workers have paycode 2, commission workers have paycode 3 and pieceworkers have paycode 4.

The program must prompt the payroll clerk to enter the appropriate information requires to calculate each employee's weekly pay based on that employee's paycode. A summary of **total employees** and **total amount paid** (sorted for **each** position) must be displayed at the end.

Note that when the payroll clerk enters any inappropriate data (for example, entered 6 or a character as the paycode), the program should display an error message i.e. any potential problems should be addressed in your code to avoid any fatal errors. You can assume the user only enters one number or character at one time.

For this assignment, you are required to:
1. Formulate the algorithm using pseudocode.
2. Draw a flow chart.
3. Write a working C program.

Below are some examples of the program output:

```
C:\CDU\VisualStudio\Project14\Debug\Project14.exe

Enter employee paycode (1,2,3,4,Q):1
Enter weekly salary for manager: 2000
Manager salary of $2000.00

Enter employee paycode (1,2,3,4,Q):2
Enter the hourly wage for the employee: 60
Enter hours worked for hourly employee: 30
Wages are $1800.00 ($1800.00 regular and $0.00 overtime)

Enter employee paycode (1,2,3,4,Q):3
Enter the sales value of item A: 500
Enter the sales value of item B: 600
Enter the sales value of item C: 700
Commsion wage is $367.30 ($250.00 base + $117.30 comissions ($28.50 item A, $38.
40 item B, $50.40 item C))

Enter employee paycode (1,2,3,4,Q):4
Enter the number produced of item 1: 50
Enter the number produced of item 2: 60
Enter the number produced of item 3: 70
Pieceworker wage: $4415.00 (items 1 $1125.00, items 2 $1470.00, items 3 $1820.00
)

Enter employee paycode (1,2,3,4,Q):Q
Manager: Employees: 1  Total wages: $2000.00
Hourly: Employees: 1  Total wages: $1800.00
Commision: Employees: 1  Total wages: $367.30
Pieceworker: Employees: 1  Total wages: $4415.00
Net Total: Employees: 4  Total wages: $8582.30
```

```
C:\CDU\VisualStudio\Project14\Debug\Project14.exe

Enter employee paycode (1,2,3,4,Q):e
Unrecognised paycode. Please only enter '1' for manager, '2' for hourly,
'3' for commission, '4' for pieceworker, or 'Q' to quit and see totals.

Enter employee paycode (1,2,3,4,Q):4
Enter the number produced of item 1: 500
Enter the number produced of item 2: 600
Enter the number produced of item 3: e
Enter the number produced of item 3: e
Enter the number produced of item 3: 30
Pieceworker wage: $26730.00 (items 1 $11250.00, items 2 $14700.00, items 3 $780.
00)

Enter employee paycode (1,2,3,4,Q):2
Enter the hourly wage for the employee: 30
Enter hours worked for hourly employee: 50
Wages are $1650.00 ($1200.00 regular and $450.00 overtime)

Enter employee paycode (1,2,3,4,Q):1
Enter weekly salary for manager: 2000
Manager salary of $2000.00

Enter employee paycode (1,2,3,4,Q):q
Unrecognised paycode. Please only enter '1' for manager, '2' for hourly,
'3' for commission, '4' for pieceworker, or 'Q' to quit and see totals.

Enter employee paycode (1,2,3,4,Q):Q
Manager: Employees: 1  Total wages: $2000.00
Hourly: Employees: 1  Total wages: $1650.00
Commision: Employees: 0  Total wages: $0.00
Pieceworker: Employees: 1  Total wages: $26730.00
Net Total: Employees: 3  Total wages: $30380.00
```

```
C:\CDU\VisualStudio\Project14\Debug\Project14.exe

Enter employee paycode (1,2,3,4,Q):Q
Manager: Employees: 0  Total wages: $0.00
Hourly: Employees: 0  Total wages: $0.00
Commision: Employees: 0  Total wages: $0.00
Pieceworker: Employees: 0  Total wages: $0.00
Net Total: Employees: 0  Total wages: $0.00
```

```
C:\CDU\VisualStudio\Project14\Debug\Project14.exe

Enter employee paycode (1,2,3,4,Q):5
Unrecognised paycode. Please only enter '1' for manager, '2' for hourly,
'3' for commission, '4' for pieceworker, or 'Q' to quit and see totals.

Enter employee paycode (1,2,3,4,Q):8
Unrecognised paycode. Please only enter '1' for manager, '2' for hourly,
'3' for commission, '4' for pieceworker, or 'Q' to quit and see totals.

Enter employee paycode (1,2,3,4,Q):2
Enter the hourly wage for the employee: 30
Enter hours worked for hourly employee: 30
Wages are $900.00 ($900.00 regular and $0.00 overtime)

Enter employee paycode (1,2,3,4,Q):Q
Manager: Employees: 0  Total wages: $0.00
Hourly: Employees: 1  Total wages: $900.00
Commision: Employees: 0  Total wages: $0.00
Pieceworker: Employees: 0  Total wages: $0.00
Net Total: Employees: 1  Total wages: $900.00
```