X414.20 Fundamentals of Software Development

Coding Lab 6 – Selection

Please complete these lab steps only while in the Zoom meeting.

It is easiest to print these instructions so that you can refer to them during the lab. Your screen will be busy enough with both Zoom window and your Amazon Workspace window.

Task 1 – Write a small program to tell the user if their blood pressure is LOW or NORMAL/HIGH.

This program should ask the user for a blood pressure value and then tell the user if the value is LOW or NORMAL/HIGH, based on the level. There are only two possible messages to the user: LOW or NORMAL/HIGH. We'll get more complex in a later task.

LOW should be printed when the blood pressure is 110 or lower. NORMAL/HIGH should be when the blood pressure is over 110. The blood pressure can possibly contain a decimal digit.

This program should process multiple blood pressure prompts, asking if the user wants another one after it gives the results. Y or y is seen as yes, and anything else is seen as no.

You may do this program with or without modularity.

The source code should be stored under: **c:\class\lab6task1.c**.

The sample dialog is:

```
Blood Pressure Warning Program

This is just a guideline program.

-----
Please enter a blood pressure reading: 105

BLOOD PRESSURE IS LOW
Please refer to the doctor.

Do you have another to analyze (y/n)? y

-----
Please enter a blood pressure reading: 120

BLOOD PRESSURE IS NORMAL/HIGH.

Do you have another to analyze (y/n)? Y

-----
Please enter a blood pressure reading: 110

BLOOD PRESSURE IS LOW
please refer to the doctor.

Do you have another to analyze (y/n)? n

3 blood pressures processed.
```

Some things to think about:

1. We have two possible outcomes. What is the appropriate selection construct here?

Keep working on this until you think it is correct. Then **Ask for Help** so that I can check both your pseudocode design and your C program (for each student). **Do not proceed until I have checked and approved your program.**

Task 2 – Add a third possible outcome

In this exercise, you will take the Task 1 program and do what is necessary so that you can distinguish between 3 possible outcomes: LOW, NORMAL, HIGH. This will be based on the blood pressure and the age. 110 or less is LOW. Greater than 120 + half the age is HIGH. Greater than 110 but less or equal to 120 + half the age is NORMAL. The source code should be stored under: **c:\class\lab6task2.c**.

The sample dialog is:

```
Blood Pressure Warning Program

This is just a guideline program.

-----
Enter the patient's age: 35
Please enter a blood pressure reading: 105

BLOOD PRESSURE IS LOW
Please refer to the doctor.

Do you have another to analyze (y/n)? y

-----
Enter the patient's age: 50
Please enter a blood pressure reading: 140

BLOOD PRESSURE IS NORMAL

Do you have another to analyze (y/n)? Y

-----
Enter the patient's age: 52
Please enter a blood pressure reading: 146.2

BLOOD PRESSURE IS HIGH
Please refer to the doctor.

Do you have another to analyze (y/n)? n

3 blood pressures processed.
```

Some things to think about:

1. We have three possible outcomes. What is the appropriate selection construct here?

Keep working on this until you think it is correct. Then **Ask for Help** so that I can check both your pseudocode design and your C program (for each student). **Do not proceed until I have checked and approved your program.**

Task 3 – Add a special message for minors if the blood pressure is HIGH or LOW

In this exercise, you will take the Task 2 program and do what is necessary so that you can print a special message in case the blood pressure is HIGH or LOW and the subject is a minor (under 18 years of age). The source code should be stored under: **c:\class\lab6task3.c**.

The sample dialog is:

```
Blood Pressure Warning Program

This is just a guideline program.

-----
Enter the patient's age: 35
Please enter a blood pressure reading: 105

BLOOD PRESSURE IS LOW
Please refer to the doctor.

Do you have another to analyze (y/n)? y

-----
Enter the patient's age: 17
Please enter a blood pressure reading: 180

BLOOD PRESSURE IS HIGH
Please refer to the doctor.
Patient is a minor. Advise to bring parent.

Do you have another to analyze (y/n)? Y

-----
Enter the patient's age: 52
Please enter a blood pressure reading: 146.2

BLOOD PRESSURE IS HIGH
Please refer to the doctor.

Do you have another to analyze (y/n)? n

3 blood pressures processed.
```

Some things to think about:

1. We have three possible outcomes, plus in certain cases a special message to display. There are several ways to do this, but only a couple that are really straightforward. Think about how you will structure this. Perhaps a Nassi-Schneiderman chart???

Keep working on this until you think it is correct. Then **Ask for Help** so that I can check both your pseudocode design and your C program (for each student). **Do not proceed until I have checked and approved your program.**

Task 4 – Submit your files in Canvas

1. Close Dev C++.
2. Re-open your Google Chrome. Be sure to choose Chrome from inside your AWS, not the one on your physical computer.
3. You should be in Canvas. If not, browse there and login.
4. Go to **Modules**. Then **Module 6**. If it doesn't display automatically, click the wedge next to it to open things up. Click on **Coding Lab – M6** – **Selection**.
5. Click the big **Submit Assignment** button.
6. Under **File Upload**, click **Choose File**.
7. In the File name box, type C: and press ENTER. Then double-click the class folder to open it.
8. For each of the C files you generated tonight, highlight each of them (one at a time), click it and then click **Open** (or you could simply double-click the file).
9. The file should appear next to the **Choose File** button.
10. Do this for each additional C file from tonight plus your single output file. You will need to choose **+Add Another File** for each of these. **There should be a total of 3 files**: 3 source code files. There are no data files or output files in this lab.
11. You may add a comment to the **Comments…** area if you wish.
12. Then click **Submit Assignment**. The button will change to **Submitting** and then you will be returned to the Coding Lab screen. Assignment should be marked as Submitted! In the upper right corner.
13. Later, to check your score, click on **Grades** in the second-level menu on the left.
14. If I haven't graded your program yet, you will see an icon. Other, you will see a score. You can click on the name of the assignment to see my comments and to issue further comments or respond to mine.
15. Coding Labs will typically receive a score of 5 if you completed the lab and your submission was substantially correct. You may receive a score of 4 if there are some problems, and 3 if it is incomplete. You will receive a 0 if you did not participate in the lab. Ignore any "Total" scores that Canvas may show. They are meaningless.

Congratulations on completing your fifth Coding Lab!!! Please exit the breakout session to rejoin the entire class for final announcements.