National University of Sciences and Technology (NUST)
School of Electrical Engineering and Computer Science

Department of Computing

CS110: Fundamentals of Computer Programming

Class: BSCS – 5C

Assignment 2

Submission Due: Nov 8th, 2015, 11:55 pm

Instructor: M. Muddassir Malik

Assignment 2

Introduction

In this assignment you have to understand and implement the following concepts

- Loops
- Nested Loops

Objectives

- To develop skills for using loops.
- To understand how to program conditional calculations.

Tools/Software Requirement

- Microsoft Visual Studio 2010 or later

Task 1 [6]

Write a program that allows a human user to play a simplified version of Blackjack against a computer opponent (you need to learn and use random function).

The simplified blackjack rules are as follows:

- Don't worry about suits or face cards; "cards" will have values from 2-11, and all values are equally likely (that is, unlike a real blackjack game, there's no greater chance of drawing a card with value 10).
- Draw two cards for the player and display them.
- Draw two cards for the "dealer" and display one of them, keeping the other one hidden.
- Allow the player to "hit" as many times as he would like.
- If the player "busts" (gets a total over 21), the dealer automatically wins.
- Allow the dealer to hit as many times as he would like. Dealer should probably hit on sixteen or lower.
- If the dealer busts, the player automatically wins.

Assuming no one has busted, the player with the highest total wins. Dealer wins all ties.

Sample output:

```
Welcome to Mitchell's blackjack program!
You get a 6 and a 5.
Your total is 11.

The dealer has a 7 showing, and a hidden card.
His total is hidden, too.

Would you like to "hit" or "stay"? hit
You drew a 8.
Your total is 19.

Would you like to "hit" or "stay"? stay

Okay, dealer's turn.
His hidden card was a 3.
His total was 10.

Dealer chooses to hit.
He draws a 7.
His total is 17.

Dealer stays.

Dealer total is 17.
Your total is 19.

YOU WIN!
```

Courtesy: G. Mitchell

Task 2 [4]

Print the table of multiples for numbers up to 16 using loops. The output will be similar to the following table and you must use for loops:

	1	2	3	4	5	6	7	8	… 16
1	1x1=1	1x2=2	1x3=3	…	…	…	…	…	…
2	1x2=2	2x2=4	…	…	…	…	…	…	…
3	…	…	…	…	…	…	…	…	…
4	…	…	…	…	…	…	…	…	…
… 16	…	…	…	…	…	…	…	…	…

General Instructions

Any assumptions that you take must be properly stated.

You must do this work individually but you can ask for help from the Lab Engineer. You cannot share your code with anyone or copy code. Plagiarism will result in zero marks.

Deliverables

Submit only 1 zip file (please do not submit a .rar as it does not decrypt through script) on the given LMS link, which contains both the programs. You must include the source code files (the .c or .cpp files), not an exe or any other kind of file. Anyone who submits a word document or anything other than source files will be awarded a zero. Your file should be named as asg1[YOUR FIRST AND LAST NAME].zip

Always submit 1 day before the deadline to avoid any last minute delays.

Marks break down:

1. Working of the program: 60%

2. Code readability: 20%

3. Output structure and aesthetics: 20%