

- 1) 3/111/2019 CS111 SPRING 2019 Midterm 7:30 – 9:30 ROOM RE-100
- 2) The midterm will consist of four parts.
 - a) Programming small code snippets
 - b) What is the output of this code
 - c) Write a small program that interacts with the user
 - d) Extra Credit
- 3) Below are review problems that might have been on the quiz. In general, these problems are more difficult than the actual test questions (in my opinion).

Review 1

User a letter of the alphabet either upper or lowercase the code tells him which letter it is
For example:

'A' → "'A' is the first letter of the alphabet

'b' → "'b' is the second letter of the alphabet

Code Begins...

```
cout << "Enter a character and I will tell you" << endl;
cout << "which letter of the alphabet it is.." << endl;
char c;
cin >> c;
```

Review 2

Using a while loop find the square root of a number to the 4'th decimal place with the following restriction, $\text{Result} * \text{Result} \leq \text{NumberEntered}$

For example:

8.9 → 2.9832 **where** $2.9832 * 2.9832 \leq 8.9$

9.0 → either 3.0 or 2.9999 **where** 3.0 or $2.9999 \leq 9.0$

Code Begins...

```
cout << "enter a number greater or equal to 1";
double d;
cin >> d;
double dFourthPlace = 0.0001;
```

Review 3

Use a while loop and subtraction to divide two numbers

Use a while loop and addition to multiply two numbers

Use a while loop and subtraction to find the remainder of two numbers. This will work with decimals also.

Review 4

use a loop to print out ten random numbers...

the first, between 1 and 10

the second, between 10 and 20

the third between 30 and 40

For example:

5,12,23,39,43

Code Begins...

```
srand(time(0));
```

Review 5

use three loops to print out all possible combination of three letters

note that no letter can exist twice in one combination

For example

This is correct **a,b,c** **a,b,d** **a,b,e**

This is incorrect **a,b,a** **a,b,b** **a,e,e**

Code Begins...

```
for (firstLetter = 'a'; firstLetter <= 'z'; firstLetter++)
```

More Review Material

1) C++ is a compiled language this means that the executable that is created, i.e. the program, is in machine language and will only run on a specific CPU

2) Computer memory is a bunch of 0's and 1's there is no way to store anything else.

integers are memory locations where the 0's and 1's represent a whole number.

doubles are memory locations that can store decimals because they are stored as two whole numbers one for the number and one for the power.

char is basically a small integer, the difference being that normally a char only needs to store a value between 0 and 255.

When a char type is used, it is assumed that the char contains a number representing a character from the ascii table.

Other types or objects like the **cout** object or the **string** object or other types are constructed from these basic types.

3) things to know

a) string

b) expression

c) true and false

d) if and if else

e) statement

f) blocks

g) while

h) do while

i) for

j) continue

k) break

l) operators

4) Tricks

a) remove decimal portion of a double

b) check if a number is even/odd

c) remove last digit of an integer

d) examine last digit of an integer

e) draw a two dimensional figure

f) use a loop to add, divide, or count digits

g) get a random number in a specific range