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[CPSC 230]

Chapter 4- lab assignment

(20 points)

Note: Submit your assignment in the inbox (chapter 4 assignment). If the assignment includes writing a program code, then copy the codes and the outputs

Part 1, ch 4-assignment,

1- Write a program to calculate the probability of getting two six out of 3000 times on rolling two dice. Use srand(time(NULL)); to initialize the Random number generator (to initialize different random number for each different run time)

```
//CPSC 230 RAVI PATEL DICE ROLLER
#include <iostream>

using namespace std;
int main(int argc, char *argv[]) {
float six = 0;
int die1;
int die2;
int i = 3000000;
srand (time(NULL)); //initialized all vars

do {

     die1 = (rand()%6) + 1; //roll dice and set result to die1
     die2 = (rand()%6) + 1; //roll dice and set result to die2

     if (die1 == 6 && die2 == 6) //if die1 and die2 are both 6
               six++; //add 1 to six counter

     --i; //go down iterations from 3000000 until 0
     }

          while (i>=0);

cout<<"Probability of times six appears on both die: "<< ((six/3000000)*100) <<
"%"; //display number of times six appears on both die

}
```

//SAMPLE OUTPUT:
//Probability of times six appears on both die: 2.7811%

2- Write a program to generate 10 random values between 30 and 50? Then find the average.

```
//CPSC 230 RAVI PATEL RAND NUM GENERATOR & AVG
#include <iostream>

using namespace std;
int main(int argc, char *argv[]) {
     float avg = 0;
     srand(time(NULL));
     int rand_integer;
     int min=30, max=50;
     int range=(max-min)+1;
     for(int index=0; index<10; index++){
          rand_integer = (min + int((double)range*rand()/(double)(RAND_MAX +
1.0)));
          avg += rand_integer;
          cout << rand_integer << endl;
          }
          cout << "Average of 10 numbers between 30 and 50 is: " << avg/10;
}

//SAMPLE OUTPUT:
//34
//49
//50
//50
//46
//32
//31
//35
//41
//35
//Average of 10 numbers between 30 and 50 is: 40.3
```

3 – Write one program to test the following functions,

static_cast<double> (11)/2, sqrt(pow(3,2), ceil(5.8),

floor(5.8) , rand() % 4 + 10

```
//CPSC 230 RAVI PATEL CH4 Assignment P1 Q3
#include <iostream>
#include <cmath>

using namespace std;
int main(int argc, char *argv[]) {
     cout << static_cast<double> (11)/2; //cast as double, result 5.5
     cout << "\n";
     cout << (sqrt(pow(3,2))); //sqrt of a power is the original number
     cout << "\n";
    cout << ceil(5.8); //ceil rounds up to 6
     cout << "\n";
    cout << floor(5.8); //floor rounds down to 5
     cout << "\n";
    cout << rand() %  4  +  10; //random number remainder when divided by 4, add
10
}

//SAMPLE OUTPUT:
//5.5
//3
//6
//5
//13
```

4 - Write a function max1(a1,a2,a3) to return the max number of three integer values a1,a2 and a3.

```
//CPSC 230 RAVI PATEL MAX NUM FINDER
#include <iostream>
int uno = 0;
int dos = 0;
int tres = 0;

using namespace std;
int max1(int a1,int a2,int a3) {
     if (a1 == a2 == a3)
          return 0;
     if (a1 > a2)
          if (a1 > a3)
               return a1;
     if (a2 > a1)
          if (a2 > a3)
               return a2;
     if (a3 > a1)
          if (a3 > a2)
               return a3;
     if (a1 == a3)
          return a3;
     if (a1 == a2)
          return a2;
     if (a2 == a3)
          return a3;
     return 0;
}

int main(){
     cout<<"Input a number: ";
     cin>>uno;
     cout<<"Input a number: ";
     cin>>dos;
     cout<<"Input a number: ";
     cin>>tres;
     cout<<"The maximum number is: "<< max1(uno,dos,tres);
}

//SAMPLE OUTPUT:
//Input a number: 4
//Input a number: 8
//Input a number: 16
//The maximum number is: 16
```