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//File: lab9.cpp
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//Compiler used: MS Visual Studio 2017
//Purposes: program 1: generate 10 rand nums between a lower and upper bound
//          program 2: replicate a given flow chart
//          program 3: replicate a given flow chart
//          program 4: output I incremented by 20 while it is less than 118 in two
different ways
//          program 4: game where user has to guess the position of a randomly flipped
coin

#include <iostream>
#include <cstdlib>
#include <ctime>

using namespace std;
#define prog 1

#if prog == 1
int main() {
       int lowBound, highBound, randomNumber = 0;
    srand((unsigned)time(NULL));
       cout << "Enter a lower bound:";
       cin >> lowBound;
       cout << "Enter an upper bound:";
       cin >> highBound;

       for (int i = 0; i < 10; i++) {
           // srand((unsigned)time(NULL));

              randomNumber = lowBound + ( rand() % ( highBound - lowBound + 1 ) );
              cout << randomNumber <<"  ";
       }
       return 0;
}
Enter a lower bound:12
Enter an upper bound:55
25  46  38  19  28  14  49  26  23  51


#elif prog == 2
int main() {
       const int START_INT = 10;
       const int END_INT = 100;
       const int FACTOR = 2;
       const int ITERATORVAL = 10;
       int counter = START_INT;

       while (counter < END_INT)
       {
              cout << counter * FACTOR << "  ";
              counter += ITERATORVAL;
       }
       return 0;
}
20  40  60  80  100  120  140  160  180
```

```
#elif prog == 3
int main() {
	const int START_INT = 10;
	const int END_INT = 100;
	const int FACTOR = 2;
	const int ITERATORVAL = 10;
	int counter = START_INT;

	for (counter < END_INT, counter += 20)
	{
		cout << counter<< "  ";
	}
	return 0;
}
```

```
10  30  50  70  90
```

```
#elif prog == 4
int main() {
	cout << "Output from the for-loop..."<<endl;
	for (int i = 0; i < 118; i +=9)
	{
		cout << i << "  ";
	}
	cout << endl;
	cout << "Output from the while-loop..."<<endl;
	int i = 0;
	while (i < 118)
	{
		cout << i << "  ";
		i += 9
	}
	return 0;
}
```

```
Output from the for-loop...
0  9  18  27  36  45  54  63  72  81  90  99  108  117
Output from the while-loop...
0  9  18  27  36  45  54  63  72  81  90  99  108  117
```

```
#elif prog == 5
int main(){

	int userinput, Genned= 0;
	bool valid = true;

	cout << "I am flipping a coin, enter 1 <head> 0 <tail>:";
	cin >> userinput;
	srand(time(NULL));
	Genned = rand() % 2;
	if (userinput != 1 && userinput != 0)
	{
		cout << "Run the program again, bye!";
		valid = false;
	}
	else if (Genned == 0 && valid)
		cout << "The Computer Generated a \t TAIL"<<endl;
	else if (Genned == 1 && valid)
```

```
                cout << "The Computer Generated a \t HEAD" <<endl;

        if (userinput == Genned && valid)
                cout << "You guessed right!"<<endl;
        else if  (userinput != Genned && valid)
                cout << "You guessed wrong!"<<endl;

        return 0;
}

#endif // !define prog = 1
```

```
I am flipping a coin, enter 1 <head> 0 <tail>:1
The Computer Generated a         HEAD
You guessed right!

I am flipping a coin, enter 1 <head> 0 <tail>:0
The Computer Generated a         HEAD
You guessed wrong!

I am flipping a coin, enter 1 <head> 0 <tail>:888
Run the program again, bye!
```