ASSIGNMENT 1: loops in C++
DATE: 24/03/2021 Wednesday

CODE:

```cpp
#include <iostream>
using namespace std;

int main () {

  //WHILE LOOP
  {
     cout<<"###  WHILE LOOP  ###";
 // Local variable declaration:
  int a = 10;

  // while loop execution
  while( a < 20 ) {
    cout << "value of a: " << a << endl;
    a++;
  }
  }



  //FOR LOOP
  {
     cout<<"###  FOR LOOP  ###";
 // for loop execution
 for( int a = 10; a < 20; a = a + 1 ) {
    cout << "value of a: " << a << endl;
 }
  }


    //DO WHILE LOOP
    {
       cout<<"###  DO WHILE LOOP  ###";
 // Local variable declaration:
  int a = 10;

  // do loop execution
  do {
    cout << "value of a: " << a << endl;
```

```cpp
    a = a + 1;
} while( a < 20 );
    }


    //NESTED LOOP
    {
        cout<<"###  NESTED LOOP  ###";
        //nested loop
int i, j;

for(i = 2; i<100; i++) {
  for(j = 2; j <= (i/j); j++)
    if(!(i%j)) break; // if factor found, not prime
    if(j > (i/j)) cout << i << " is prime\n";
}
    }


    //BREAK STATEMENT
    {
        cout<<"###  BREAK STATEMENT  ###";
// Local variable declaration:
int a = 10;

// do loop execution
do {
  cout << "value of a: " << a << endl;
  a = a + 1;
  if( a > 15) {
    // terminate the loop
    break;
  }
} while( a < 20 );

}

  //CONTINUE STATEMENT
  {
    cout<<"###  CONTINUE STATEMENT  ###";
// Local variable declaration:
int a = 10;

// do loop execution
```

```cpp
   do {
      if( a == 15) {
         // skip the iteration.
         a = a + 1;
         continue;
      }
      cout << "value of a: " << a << endl;
      a = a + 1;
   }
   while( a < 20 );

}

   //GOTO STATEMENT
   {
      cout<<"###  GOTO STATEMENT  ###";
   // Local variable declaration:
   int a = 10;

   // do loop execution
   LOOP:do {
      if( a == 15) {
         // skip the iteration.
         a = a + 1;
         goto LOOP;
      }
      cout << "value of a: " << a << endl;
      a = a + 1;
   }
   while( a < 20 );

}

/*
   //INFINITE LOOP
   {
   for( ; ; ) {
      printf("This loop will run forever.\n");
   }

}
 */
   return 0;
}
```

```
###   WHILE LOOP   ###value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 15
value of a: 16
value of a: 17
value of a: 18
value of a: 19
###   FOR LOOP   ###value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 15
value of a: 16
value of a: 17
value of a: 18
value of a: 19
###   DO WHILE LOOP   ###value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 15
value of a: 16
value of a: 17
value of a: 18
```

```
value of a: 19
###  NESTED LOOP  ###2 is prime
3 is prime
5 is prime
7 is prime
11 is prime
13 is prime
17 is prime
19 is prime
23 is prime
29 is prime
31 is prime
37 is prime
41 is prime
43 is prime
47 is prime
53 is prime
59 is prime
61 is prime
67 is prime
71 is prime
73 is prime
79 is prime
83 is prime
89 is prime
97 is prime
```

```
### BREAK STATEMENT ###value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 15
### CONTINUE STATEMENT ###value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 16
value of a: 17
value of a: 18
value of a: 19
### GOTO STATEMENT ###value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 16
value of a: 17
value of a: 18
value of a: 19


...Program finished with exit code 0
Press ENTER to exit console.
```