Solution to Practice Problems: Loops

Rewrite the following counter-control program to do while loop and for loop, in order to print out the biggest number inputted via keyboard.

```
Scanner keyboard = new Scanner(System.in);
int max = -1;
int n;
int c = 0;
while (c<10)
{
   n = keyboard.nextInt();
   if (n > max)
   {
      max = n;
   }
   c++;
}

System.out.print(max);
```

Do while loop:

```
Scanner keyboard = new Scanner(System.in);
int max, n, c;
max = -1;
c = 0;
do
{
   n = keyboard.nextInt();
   if (n > max)
   {
      max = n;
   }
   c++;
}     while (c<10);

System.out.print(max);
```

For loop:

```
Scanner keyboard = new Scanner(System.in);
int max, n, c;
max = -1;
For (c = 0; c< 10; c++ )
{
   n = keyboard.nextInt();
   if (n > max)
   {
      max = n;
   }
};

System.out.print(max);
```

Rewrite the following event control program to while loop and for loop.

```
Scanner keyboard = new Scanner(System.in);
int total = 0;
int c = 1;
int n = keyboard.nextInt();
while(c<2*n)
{
c = c* 2;
total = total + c;
System.out.print(" "+c);
}

System.out.println(total);
```

While loop:

```
Scanner keyboard = new Scanner(System.in);
int total, c, n;
total = 0;
c = 1;
n = keyboard.nextInt();
do
{
c = c* 2;
total = total + c;
System.out.print(" "+c);
} while(c<2*n);

System.out.print(total);
```

For loop:

```
Scanner keyboard = new Scanner(System.in);
int total, c, n;
total = 0;
n = keyboard.nextInt();
For ( c = 1; c<2*n;  )
{
c = c* 2;
total = total + c;
System.out.print(" "+c);
};

System.out.print(total);
```

Provide the value printed on the screenshot:

```
public class For1 {
  public static void main(String [] args) {
    for(int i = 1; i < 10; i*=i) {
      System.out.println("x = " + i);
    }
  }
}
```

screen

x = 1

…

(infinite)

```
public class For2 {
  public static void main(String [] args) {
    int i;
    for(i = 1; i < 5; i++)
      System.out.println("x = " + i);
  }
}
```

screen

x = 1

x = 2

x = 3

x = 4

```
public class For3 {
  public static void main(String [] args) {
    int i;
    for(int i = 1; i < 5; i++);
      System.out.println("x = " + i);
  }
}
```

screen
(Nothing)

```
public class For4 {
  public static void main(String [] args) {
    for(int i = 1; i < 5; i++);
      System.out.println("x = " + i);
  }
}
```

Program has error and cannot be run.

```
public class For5 {
  public static void main(String [] args) {
    for(int i = 1; i < 0; i++) {
      System.out.println("x = " + i);
    }
  }
}
```

screen
(Nothing)

```
public class Do_while1 {
  public static void main(String [] args) {
    int i = 1;
    do{
      System.out.println("x = " + i);
      i++;
    }while (i < 0);
  }
}
```

screen
x = 1