



- Terminology**
- › One iteration [cycle]
  - › Loop condition
  - › Loop variable(s)
  - › Loop body

**Repetition Structure = Loops**

- › In Nature...
- › In a factory ...
- › Other examples?

- Repetition Structure = Loops**
- › There are 3 main coding structures:
  - › Sequential
  - › Selection
  - › Repetition
- Repetition*

- Today's Goals:**
- Announcements**
- › Lab07
  - › Due: Mon. 11:50 PM
  - › Online quiz
  - › Due Sunday
  - › **Midterm Exam:**
  - › Wed. 3/09/16
  - › 6:30 – 7:30 PM
  - › LILY 1105
  - › No lecture next Friday ☺

**PURDUE**

**SOFTWARE DEVELOPMENT**

**ENGT 133**

**LOOPS IN C#**

**ENVTN-1**

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Trace the loop: (add 1 + 2 + ...)

Cycle	count	count <= 10	sum
1	1	true	1
2	2	true	3
3	3	true	6
4	4	true	10
5	5	false	
6			
7			
8			
9			
10			

Clicker-1: What is the output?

```

int n = 1;
while (n <= 6)
{
    coutOutput.Text = coutOutput.Text + n.ToString()
    + "\n";
    n++;
}

```

A. 1, 2, 3, 4, 5, 6  
 B. 1, 2, 3, 4, 5, 6, 7  
 C. 1, 2, 3, 4, 5

Ex2: Display numbers 1 to 10 : See computer demo @

```

int count = 1;
while (count <= 10)
{
    coutOutput.Text = coutOutput.Text +
    "\n";
    count++;
}

```

Ex3: Add up numbers 1 to 10

A: 2

Q: How many variables do you need?

```

int num = 1;
int sum = 0;
while (-----)
{
    // add num to sum
    // increment num
    coutOutput.Text = "Sum = " + sum.ToString();
}

```

Ex1: Display "Hall Purdue" 5 times.

```

int count; // loop variable
count = 1;
while (-----)
{
    coutOutput.Text = coutOutput.Text + "Hall Purdue \n";
    count++;
}

```

Trace the loop

```

count = 1;
while (count <= 5)
{
    coutOutput.Text = coutOutput.Text + "Hall Purdue \n";
    count = count + 1;
}

```

count	condition	Output
1	true	Hall Purdue
2	true	Hall Purdue
3	true	Hall Purdue
4	true	Hall Purdue
5	true	Hall Purdue
6	false	loop ends

**Clicker-2: What is the output?**

```

int n = 1;
while (n <= 6)
{
  n++;
}
txtOutput.Text = n.ToString();

```

A. 1, 2, 3, 4, 5, 6  
 B. 6  
 C. 7

**Infinite loop**

Ex: the following loop will never end!

```

int n = 1;
int sum = 0;
while (n <= 100)
{
  sum = sum + n;
}

```

**Loop that does not execute!**

Ex: Add up the even numbers: 0 + 2 + 4 + ...

```

int n = 0;
int sum = 0;
while (n >= 100)
{
  sum = sum + n;
  n = n + 2;
}

```