

Control Structures - Repetition

3 Forms of Repetition Control Structures:

- > do/while loops
- > while loops
- > for loops

Each have unique uses and required knowledge.

A notes about counters/increments:

<code>x = x + 1;</code>	same as	<code>x += 1;</code>	same as	<code>x++;</code>
<code>y = y - 1;</code>	same as	<code>y -= 1;</code>	same as	<code>y--;</code>
<code>z = z + 3;</code>	same as	<code>z += 3;</code>		
<code>m = m * 6;</code>	same as	<code>m *= 6;</code>		

Control Structures - Repetition (do/while loop)

Do/While Loops

Syntax:

```
do {  
    ... commands to repeat  
} while (condition that is required to repeat);
```

Examples:

```
do { c.print ( "Enter a mark: ");  
    mark = c.readInt();  
} while (mark < 1 || mark > 100);
```

Checking to see if entry is within range expected

```
do { c.print ( "Enter a mark: ");  
    mark = c.readInt();  
    if (mark <1 || mark >100) c.println ( "Error ... out of range");  
} while (mark < 1 || mark > 100);
```

Including an error message

Control Structures - Repetition (do/while loop)

Validation: Ensuring the user enters a correct entry!

```
do { c.setCursor(5,1);  
    c.println ( "Enter a mark between 1-100: ");  
    c.setCursor(5,28);  
    mark = c.readInt();  
    if (mark < 1 || mark > 100)  
        c.println ( "Invalid entry ... 1-100 please");  
} while (mark < 1 || mark > 100);
```

- First setCursor places question in the expected location of display
- Question is a println in order to erase any prior entry to the question which may have been wrong
- Second setCursor places prompt at the end of the question
- Selection gives an error message and prompt
- While holds the same condition as the selection ... when it is wrong
- A do/while loop will ALWAYS run at least once!!!

Control Structures - Repetition (while loop)

While Loops

Syntax:

```
while (condition that is required to enter the repeat)
{
    ... commands to repeat
} while (condition that is required to repeat);
```

Examples:

```
while ( (day >= 2 && day <= 6) && (month >= 2 && month <=6))
{ c.println ( "We are in 2nd semester");
}
```

- While repeat ONLY runs IF the condition is true