

Unit Four Lecture Three:

Topic 1: Nested Loops

A structure in which a loop "B" is found inside another loop "A". Loop "A" is called the outer loop and loop "B" is called the nested loop. Both loops can be any one of the three types we've studied (while, do, for), and they don't have to be the same type.

Example #1:

What is printed when this code segment executes?

```
for (int j=0; j<2; j++)
{
    for (int k=0; k<3; k++)
    {
        System.out.print("*");
    }
    System.out.println();
}
```

OUTPUT:

Example #2:

```
int accum = 0;
int sum, k;

for (int j=3; j<20; j+=5)
{
    sum = 0;
    k = 1;

    do
    {
        if (j % k == 0)
            sum += k;
        k++;
    }
    while (k<=j);

    accum += sum/2;
}
```

What are the values of the variables when we drop out of this nested loop structure?

j = _____ k = _____ sum = _____ accum = _____

Topic 2: The StringTokenizer (not tested on AP exam)

The StringTokenizer is a special class that can break up a string into items or, as they are sometimes called, tokens. By default, the string tokenizer uses white spaces as delimiters.

To use the StringTokenizer you must first

```
import java.util.StringTokenizer;
```

To declare an object of type StringTokenizer and supply it with the String to be broken up

```
StringTokenizer tokenizer = new StringTokenizer("Today is Monday");
```

If you knew there were exactly 3 tokens, this is how to break it up

```
String token1 = tokenizer.nextToken();    token1 = "Today"  
String token2 = tokenizer.nextToken();    token2 = "is"  
String token3 = tokenizer.nextToken();    token3 = "Monday"
```

If you didn't know how many tokens there were

```
int i = 0;  
while (tokenizer.hasMoreTokens())  
{  
    token[i] = tokenizer.nextToken();  
    i++;  
}
```

Assignment U4A3: The Salary Schedule Problem