
Nested loops

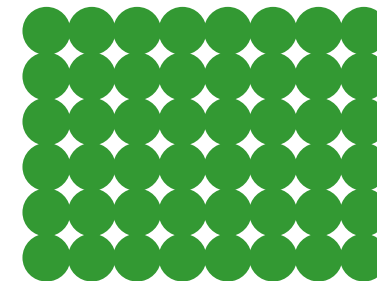
COMP 102

Victoria University of Wellington

Nested for loops

Can have loops inside loops:

eg: Draw a grid of circles



```
public void drawCircles(int rows, int cols, int diam ) {
```

```
    for (int row = 0; row < rows; row++) {
```

```
        double y = TOP + row*diam;
```

```
            for (int col = 0; col < cols; col++) {
```

```
                double x = LEFT + col*diam;
```

```
                UI.fillOval(x, y, diam, diam);
```

```
            }
```

```
    }
```

```
}
```

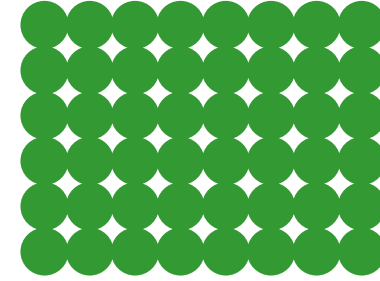
Outside loop:
do each row

Inside loop:
do each column within the
current row

Nested for loops

Nested loops can be row first, or column first:

eg Draw a grid of circles (by column)



```
public void drawCircles(int rows, int cols, int diam ) {
```

```
    for (int col = 0; col < cols; col++) {
```

```
        double x = LEFT + col*diam;
```

```
        for (int row = 0; row < rows; row++) {
```

```
            double y = TOP + row*diam;
```

```
            UI.fillOval(x, y, diam, diam);
```

```
        }
```

```
    }
```

```
}
```

Outside loop:
do each column

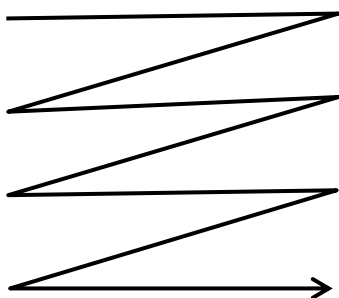
Inside loop:
do each row within the
current column

Designing nested loops with numbers

2D structures, eg table of rows and columns:

- Can do rows in the outside loop and columns in the inside loop, or vice versa

```
for (int row=0; row<rows; row++) {
    for (int col=0; col<cols; col++) {
        <do actions for row, col >
    }
}
```



```
for (int col=0; col<cols; col++) {
    for (int row=0; row<rows; row++) {
        <do actions for row, col >
    }
}
```

