

CD/CN4001: Topic 5 Lab

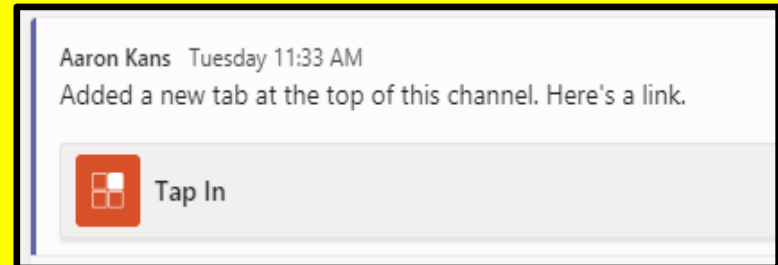
ON CAMPUS

Tap in with your ID card in a **UEL lab**



REMOTE

Click on the Tap in tab in the **General** channel of the Teams site

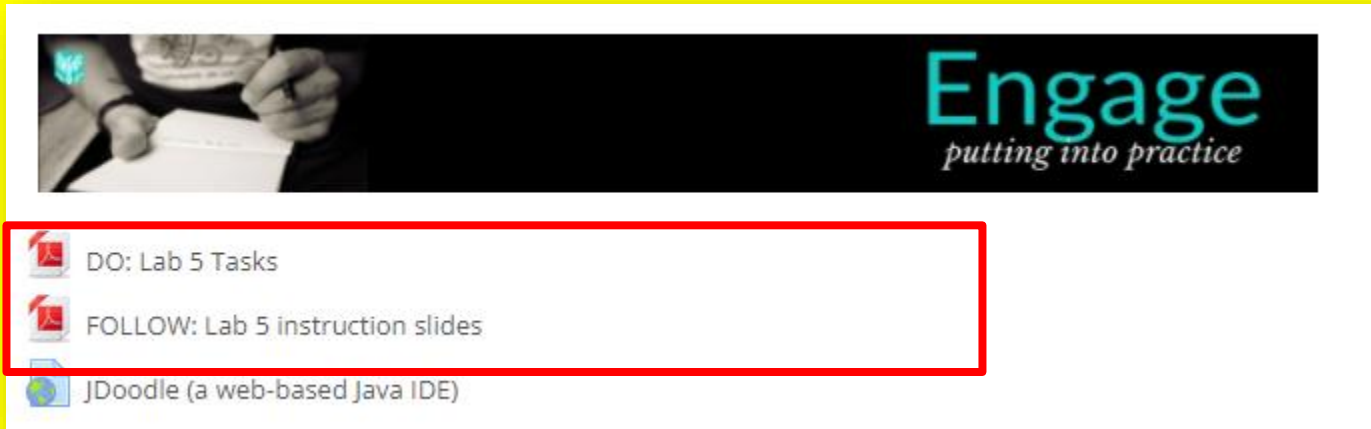


CD/CN4001: Topic 5 Lab



Click on the Week 5 block of your Moodle Site

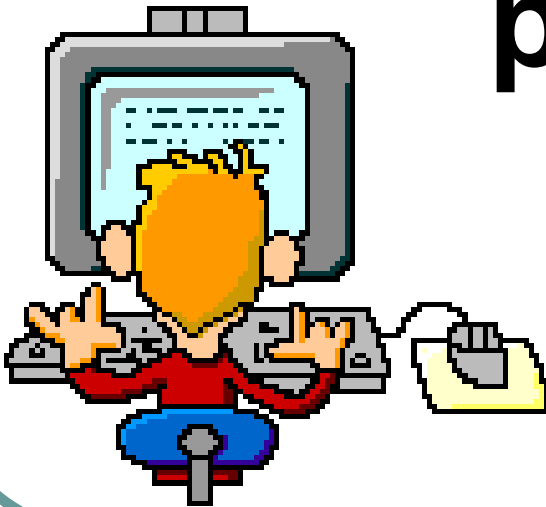
CD/CN4001: Topic 5 Lab



Open the lab 5 tasks/instruction slides

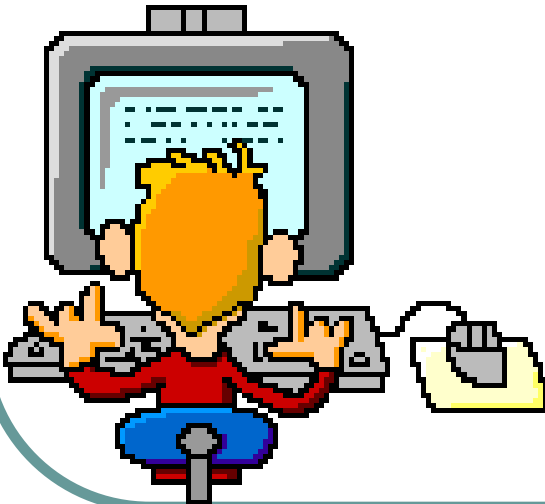
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**NOW – let's
tackle the
practical task.**



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In this lab we
will develop a
times table
application



$$1 \times 6 = 6$$

$$2 \times 6 = 12$$

$$3 \times 6 = 18$$

$$4 \times 6 = 24$$

$$5 \times 6 = 30$$

$$6 \times 6 = 36$$

$$7 \times 6 = 42$$

$$8 \times 6 = 48$$

$$9 \times 6 = 54$$

$$10 \times 6 = 60$$

$$11 \times 6 = 66$$

$$12 \times 6 = 72$$

END OF PROGRAM

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- a) Delete the code in your **main** method
- b) Rename your class **TimesTableApp**
- c) Ensure the **Interactive** slider is **on**.

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```
1 public class TimesTableApp
2 {
3     public static void main(String args[])
4     {
5
6     }
7 }
```

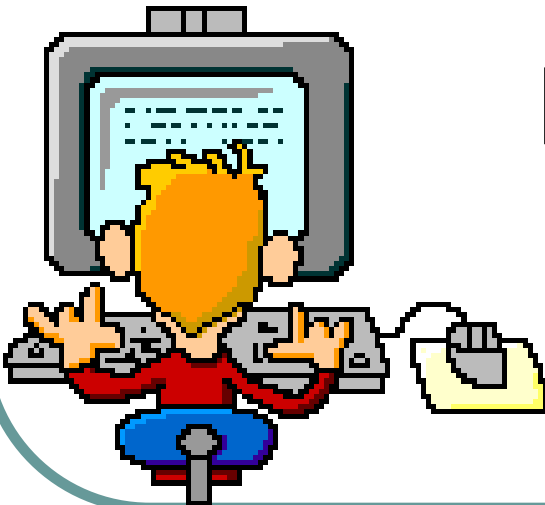
***You can start
writing code
here.***



Interactive

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We will start by just displaying the message “**x 6 =**” twelve times, followed by the **END OF PROGRAM** message



x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

END OF PROGRAM

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d) Use a **for** loop to display the following message **12 times**:

x 6 =

The program should end with an “**END OF PROGRAM**” message.

YOU HAVE 10 MINUTES!!!



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TIME'S UP!!

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

x 6 =

END OF PROGRAM

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e) Modify the display command within the loop to now display the following:

$$1 \times 6 =$$

$$2 \times 6 =$$

$$3 \times 6 =$$

and so on.

1 x 6 =

2 x 6 =

3 x 6 =

4 x 6 =

5 x 6 =

6 x 6 =

7 x 6 =

8 x 6 =

9 x 6 =

10 x 6 =

11 x 6 =

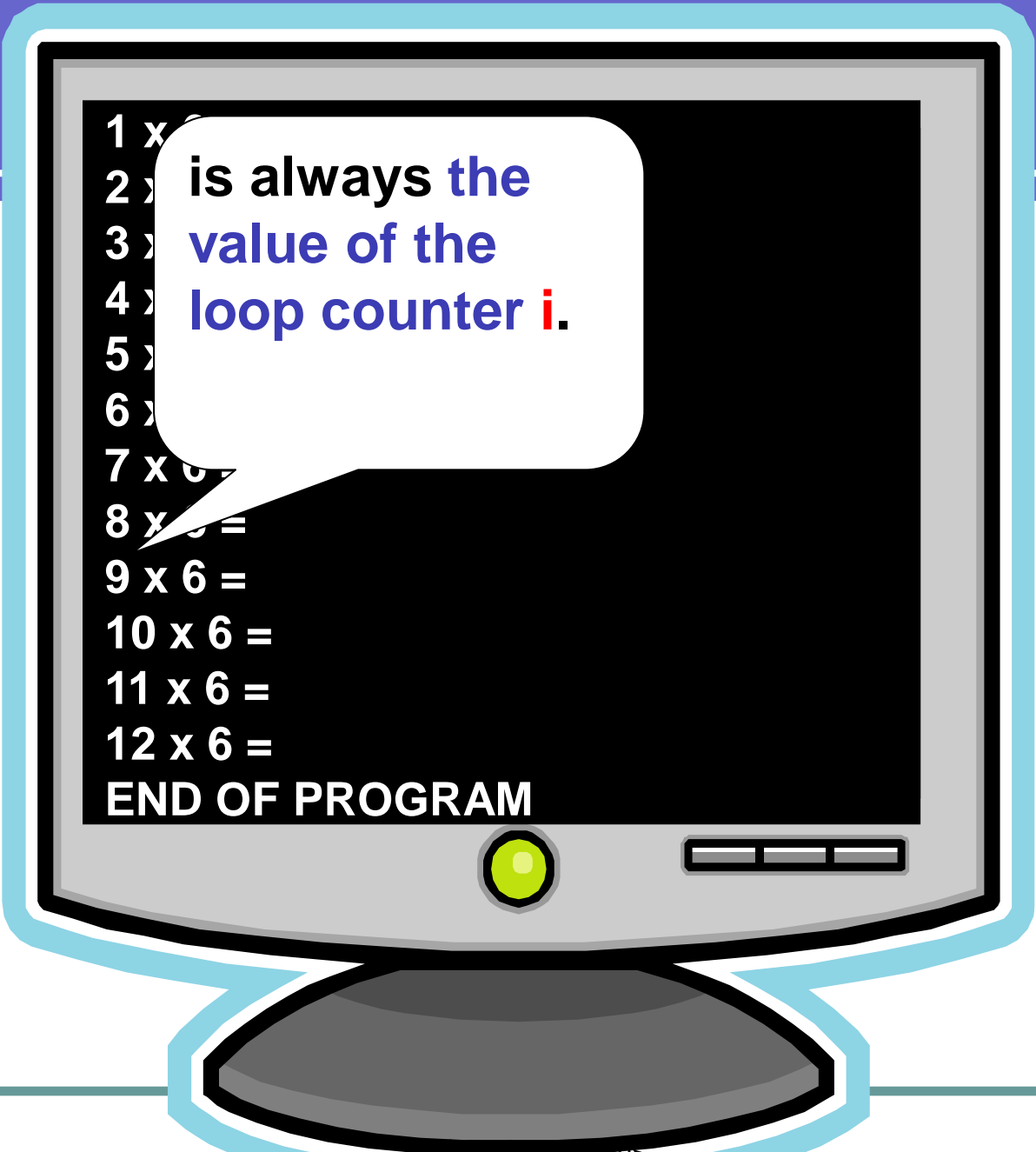
12 x 6 =

END OF PROGRAM

**Note the first
number**

```
1 x 6 =  
2 x 6 =  
3 x 6 =  
4 x 6 =  
5 x 6 =  
6 x 6 =  
7 x 6 =  
8 x 6 =  
9 x 6 =  
10 x 6 =  
11 x 6 =  
12 x 6 =
```

END OF PROGRAM



```
1 x 6 =
2 x 6 =
3 x 6 =
4 x 6 =
5 x 6 =
6 x 6 =
7 x 6 =
8 x 6 =
9 x 6 =
10 x 6 =
11 x 6 =
12 x 6 =
END OF PROGRAM
```

i is always the
value of the
loop counter **i**.

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e) Modify the display command within the loop to now display the following:

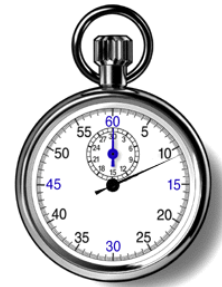
$$1 \times 6 =$$

$$2 \times 6 =$$

$$3 \times 6 =$$

and so on.

YOU HAVE 5 MINUTES!!!



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TIME'S UP!!

1 x 6 =

2 x 6 =

3 x 6 =

4 x 6 =

5 x 6 =

6 x 6 =

7 x 6 =

8 x 6 =

9 x 6 =

10 x 6 =

11 x 6 =

12 x 6 =

END OF PROGRAM

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- f) **Modify this code so that the results is now also displayed in each row:**

1	x	6	=	6
2	x	6	=	12
3	x	6	=	18

and so on.

A stylized illustration of a computer monitor with a grey bezel and a black screen. The screen displays a list of multiplication facts for the number 6, from 1x6 to 12x6, followed by the text 'END OF PROGRAM'. The monitor has a yellow power button and three small rectangular buttons on the bottom bezel. It sits on a grey, rounded base. The entire monitor is framed by a light blue border.
$$1 \times 6 = 6$$

$$2 \times 6 = 12$$

$$3 \times 6 = 18$$

$$4 \times 6 = 24$$

$$5 \times 6 = 30$$

$$6 \times 6 = 36$$

$$7 \times 6 = 42$$

$$8 \times 6 = 48$$

$$9 \times 6 = 54$$

$$10 \times 6 = 60$$

$$11 \times 6 = 66$$

$$12 \times 6 = 72$$

END OF PROGRAM

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- f) **Modify this code so that the results is now also displayed in each row:**

$$\begin{array}{l} 1 \times 6 = 6 \\ 2 \times 6 = 12 \\ 3 \times 6 = 18 \end{array}$$

and so on.

YOU HAVE 8 MINUTES!!!



CD/CN4001: Topic 5 Lab

TIME'S UP!!

A stylized illustration of a computer monitor with a grey bezel and a black screen. The screen displays a list of multiplication facts from 1 to 12 times 6, followed by the text 'END OF PROGRAM'. The monitor has a yellow power button and three small rectangular buttons on the bottom bezel. It sits on a grey, rounded base. The entire monitor is framed by a light blue border.

$1 \times 6 = 6$

$2 \times 6 = 12$

$3 \times 6 = 18$

$4 \times 6 = 24$

$5 \times 6 = 30$

$6 \times 6 = 36$

$7 \times 6 = 42$

$8 \times 6 = 48$

$9 \times 6 = 54$

$10 \times 6 = 60$

$11 \times 6 = 66$

$12 \times 6 = 72$

END OF PROGRAM

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- g) Adapt the program further so that instead of a "6 times table", **the user chooses which table is to be displayed.**



YOU HAVE 10 MINUTES!!!

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TIME'S UP!!

enter value:

enter value: 4

1 x 4 = 4

2 x 4 = 8

3 x 4 = 12

4 x 4 = 16

5 x 4 = 20

6 x 4 = 24

7 x 4 = 28

8 x 4 = 32

9 x 4 = 36

10 x 4 = 40

11 x 4 = 44

12 x 4 = 48

END OF PROGRAM

enter value:

enter value: 10

1 x 10 = 10

2 x 10 = 20

3 x 10 = 30

4 x 10 = 40

5 x 10 = 50

6 x 10 = 60

7 x 10 = 70

8 x 10 = 80

9 x 10 = 90

10 x 10 = 100

11 x 10 = 110

12 x 10 = 120

END OF PROGRAM

CN4102: Lab 5

- h) Modify the code by making use of a **while loop** to ensure that the user enters numbers between **2 and 100** only. If a number outside this range is entered an **error message** should be displayed and the user is asked to **enter another number**.

YOU HAVE 15 MINUTES!!!



CN4102: Lab 5

TIME'S UP!!

enter value: __

enter value: 125
ERROR 2-100 only
enter value: __

enter value: 125

ERROR 2-100 only

enter value: -12

ERROR 2-100 only

enter value: __

enter value: 125

ERROR 2-100 only

enter value: -12

ERROR 2-100 only

enter value: 10

enter value: 10

1 x 10 = 10

2 x 10 = 20

3 x 10 = 30

4 x 10 = 40

5 x 10 = 50

6 x 10 = 60

7 x 10 = 70

8 x 10 = 80

9 x 10 = 90

10 x 10 = 100

11 x 10 = 110

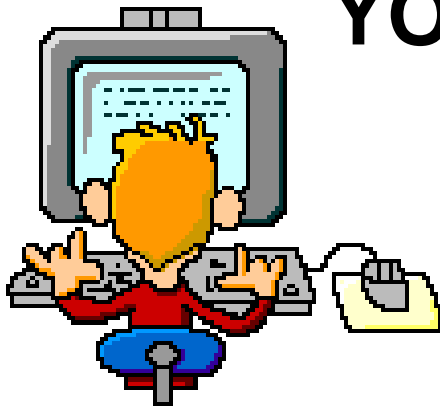
12 x 10 = 120

END OF PROGRAM

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- i) Add some **Javadoc** comments at the top of this program

YOU HAVE 5 MINUTES!!!



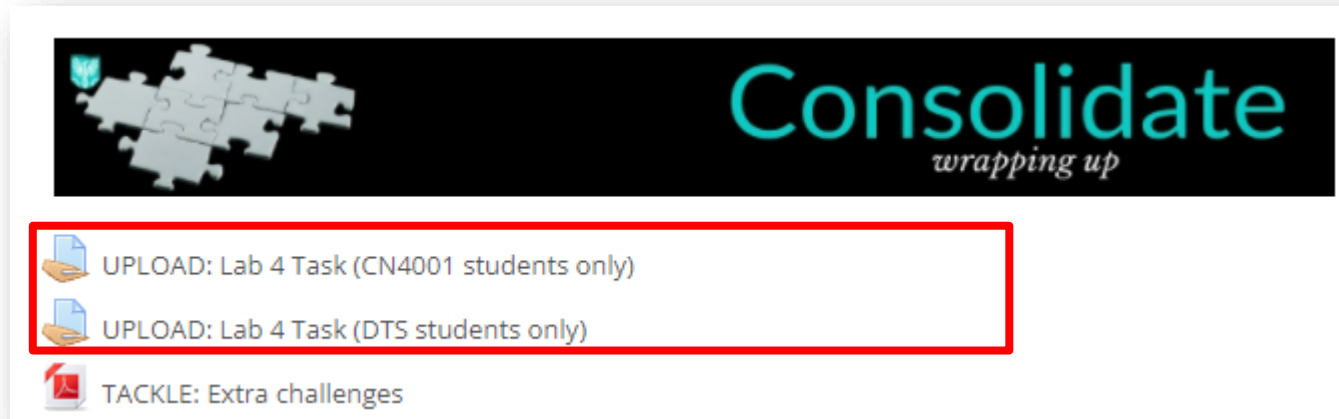
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TIME'S UP!!

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```
import java.util.*;
/**
 *   Program to print a times table
 *   @author Aaron Kans
 *   @version 1/10/2020
 */
public class TimesTableApp
{
    public static void main(String[ ] args)
    {
        // Program code here
    }
}
```

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Donalod your `TimesTableApp.java` file from Jdoodle an dthen upload to Moodle – using the appropriate submission link.

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Consolidate
wrapping up



UPLOAD: Lab 4 Task (CN4001 students only)



UPLOAD: Lab 4 Task (DTS students only)



TACKLE: Extra challenges

Spend the rest of the time in this practical working on the **extra challenges**.