CD/CN4001: Topic 10 Lab

ON CAMPUS

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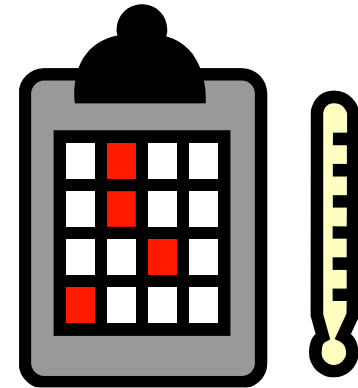

REMOTE

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

Aaron Kans   Tuesday 11:33 AM
Added a new tab at the top of this channel. Here's a link.

Tap In
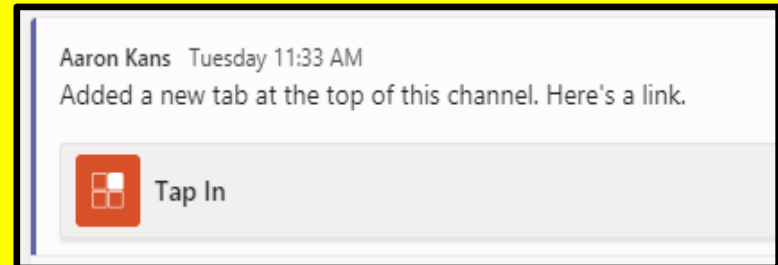
Two-Dimensional Arrays: Lecture Review

Example

Assume we need to record temperatures for four weeks - each week will itself consist of seven temperatures (one for each day of the week):


```
double [][] temperature ;

temperature = new double [4][7];
```

Two-Dimensional Arrays: Lecture Review

Accessing elements in a 2D array

day index

	0	1	2	3	4	5	6
0	12.5	12.25	14.0	13.0	13.25	13.0	12.25
1	15.25	11.95	11.8	13.25	12.75	14.5	12.45
2	9.75	11.8	11.95	13.55	12.75	14.75	13.0
3	14.0	13.25	11.8	14.0	14.35	11.0	11.95

week index

`temperature[2][5]`

Initializing 2D arrays: An example

X	X	O
O	X	O
X	O	X

Initializing 2D arrays: An example

```
char[][]a2DArray =   { {'X', 'X', 'O'},
                       {'O', 'X', 'O'},
                       {'X', 'O', 'X'} } ;
```

X	X	O
O	X	O
X	O	X

For this task we will consider a magic word square.

'P'	'R'	'E'	'Y'
'L'	'A'	'V'	'A'
'O'	'V'	'E'	'R'
'T'	'E'	'N'	'D'

For this task we will consider a magic word square.

'P'	'R'	'E'	'Y'
'L'	'A'	'V'	'A'
'O'	'V'	'E'	'R'
'T'	'E'	'N'	'D'

Each item is a character

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For this task we will consider a _magic word square_.

'P'	'R'	'E'	'Y'
'L'	'A'	'V'	'A'
'O'	'V'	'E'	'R'
'T'	'E'	'N'	'D'

Every row is a word

For this task we will consider a magic word square.

'P'	'R'	'E'	'Y'
'L'	'A'	'V'	'A'
'O'	'V'	'E'	'R'
'T'	'E'	'N'	'D'

Every column is a word

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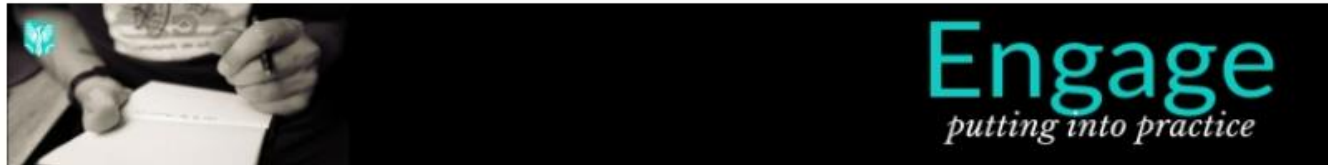
DO: Lab 10 Tasks

FOLLOW: Lab 10 instruction slides

JDoodle (a web-based Java IDE)

Open the lab 10 tasks/instruction slides

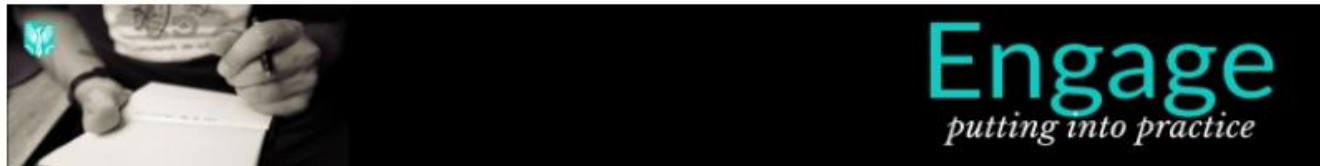# CD/CN4001: Topic 10

In the default MyClass program provided, delete the default code in the main method and rename the class name to MagicSquareApp

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

CD/CN4001: Topic 10

DO: Lab 10 Tasks

FOLLOW: Lab 10 instruction slides

JDoodle (a web-based Java IDE)

This week we will look at the tasks set then allow you to work trough the tasks – just ask for help when you need it

a) *In the main method write the instruction to declare and initialize a 2D array, magicSquare, to hold the words illustrated in the diagram below.*

'P'	'R'	'E'	'Y'
'L'	'A'	'V'	'A'
'O'	'V'	'E'	'R'
'T'	'E'	'N'	'D'

b) Write a method, *displaySquare*, that accepts and displays the *magicSquare* array - and write the instruction in *main* to call this method.

'P'	'R'	'E'	'Y'
'L'	'A'	'V'	'A'
'O'	'V'	'E'	'R'
'T'	'E'	'N'	'D'

PREY

LAVA

OVER

TEND

c) *Write a method, displayRow, that accepts the magicSquare array and a row number and displays the word in that row - and write the instruction in main to call this method with a row number of 2.*

'P'	'R'	'E'	'Y'
'L'	'A'	'V'	'A'
'O'	'V'	'E'	'R'
'T'	'E'	'N'	'D'

c) *Write a method, displayRow, that accepts the magicSquare array and a row number and displays the word in that row - and write the instruction in main to call this method with a row number of 2.*

'P'	'R'	'E'	'Y'
'L'	'A'	'V'	'A'
'O'	'V'	'E'	'R'
'T'	'E'	'N'	'D'

c) *Write a method, displayRow, that accepts th[...] array and a row number and displays the wo[...] and write the instruction in main to call this [...] row number of 2.*

Remember to take 1 off the row number to get back to the correct array index

'P'	'R'	'E'	'Y'
'L'	'A'	'V'	'A'
'O'	'V'	'E'	'R'
'T'	'E'	'N'	'D'

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LAVA

(c) Aaron Kans

d) *Write a method, displayColumn, that accepts the magicSquare array and a column number and displays the word in that column - and write the instruction in main to call this method with a column number of 4.*

'P'	'R'	'E'	'Y'
'L'	'A'	'V'	'A'
'O'	'V'	'E'	'R'
'T'	'E'	'N'	'D'

d) *Write a method, *displayColumn*, that accepts the *magicSquare* array and *a column number* and displays the word in that column - and write the instruction in *main* to call this method with a column number of *4*.*

'P'	'R'	'E'	'Y'
'L'	'A'	'V'	'A'
'O'	'V'	'E'	'R'
'T'	'E'	'N'	'D'

d) *Write a method, displayColumn, that accepts* *magicSquare array and a column number a* *word in that column - and write the instructi* *this method with a column number of 4.*

'P'	'R'	'E'	'Y'
'L'	'A'	'V'	'A'
'O'	'V'	'E'	'R'
'T'	'E'	'N'	'D'

Remember to take 1 off the column number to get back to the correct array index

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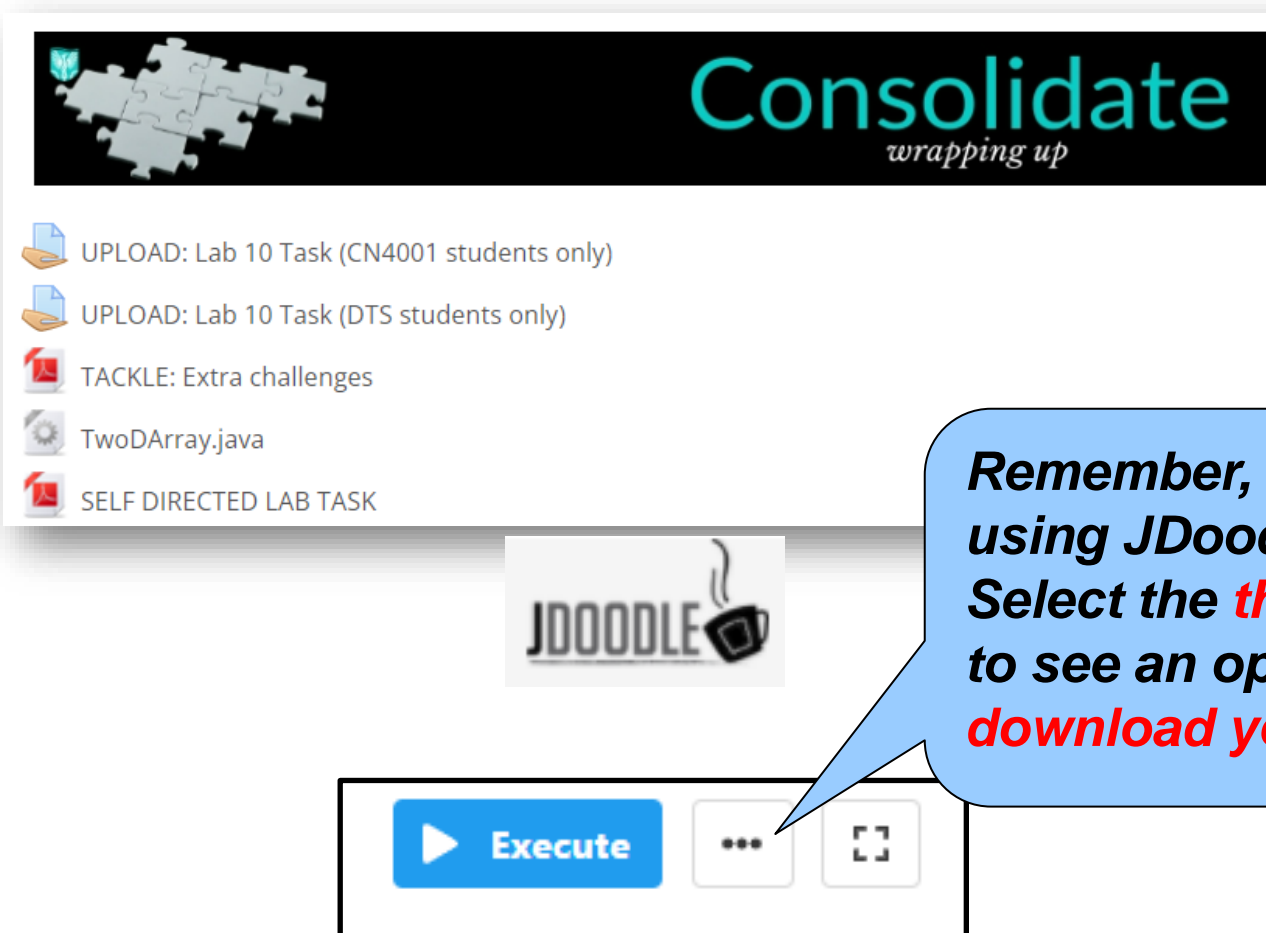
Y
A
R
D

CD/CN4001: Topic 10 Lab
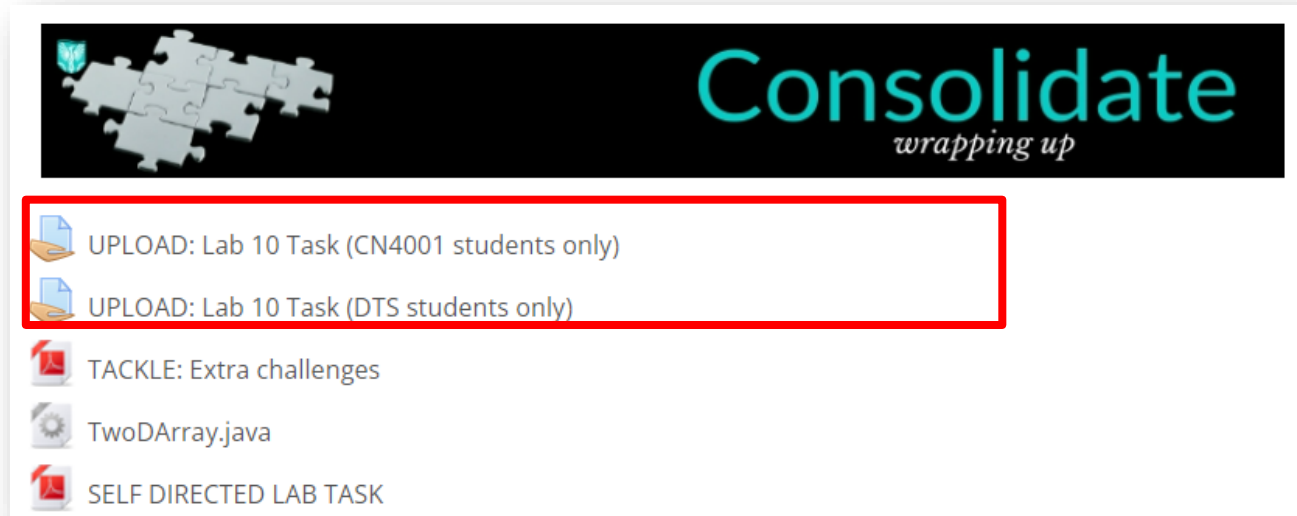
Upload the MagicSquareApp.java file to Moodle via the appropriate submission link.

CD/CN4001: Topic 10 Lab

Consolidate
wrapping up

UPLOAD: Lab 10 Task (CN4001 students only)

UPLOAD: Lab 10 Task (DTS students only)

TACKLE: Extra challenges

TwoDArray.java

SELF DIRECTED LAB TASK

JDOODLE

Remember, if you are using JDoodle, Select the three dots to see an option to download your file

▶ Execute   •••   [ ]

CD/CN4001: Topic 10 Lab

UPLOAD: Lab 10 Task (CN4001 students only)

UPLOAD: Lab 10 Task (DTS students only)

TACKLE: Extra challenges

TwoDArray.java

SELF DIRECTED LAB TASK

JDOODLE

Open (from local file)

Save (to local file)

Pretty Print

Select the Save (to local file) option

CD/CN4001: Topic 10 Lab

UPLOAD: Lab 10 Task (CN4001 students only)

UPLOAD: Lab 10 Task (DTS students only)

TACKLE: Extra challenges

TwoDArray.java

SELF DIRECTED LAB TASK

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

CD/CN4001: Topic 10 Lab

Consolidate
wrapping up

UPLOAD: Lab 10 Task (CN4001 students only)
UPLOAD: Lab 10 Task (DTS students only)
TACKLE: Extra challenges
TwoDArray.java
SELF DIRECTED LAB TASK

You can also use this lab time to work on your final Self-Directed Practical Task (worth 18 marks)

CD/CN4001: Topic 10 Lab

Term One Module Evaluation Questionnaires

Also, please spend a few minutes completing the module evaluation questionnaire for the Software Development Module

CD/CN4001: Topic 10 Lab

Term One Module Evaluation Questionnaires

Please search moduleevaluation@uel.ac.uk in your student email inbox to find the email containing all of your surveys.