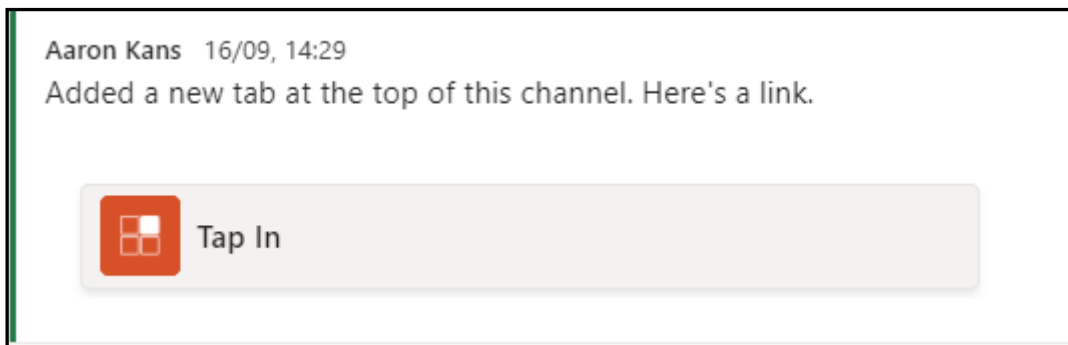


CD/CN4001 Lab Sheet (Topic 9 – Implementing Classes)

Before your lab session, make sure you have:

- **watched** the WEEK 9 lecture videos on the **CD/CN4001 Moodle Site** by clicking [here](#)
- **logged on** to the live lecture Q&A on **Monday 10-11am** via the **CD4001/CN4001 Teams** site by clicking [here](#).
- When joining the Q&A on Teams, please make sure you click the **Tap-In** button at the top of the **General channel** at 10am (link [here](#)):



Then check your timetable to find out the day/time/location of your lab session.

If you have permission from your course leader to study remotely, follow these instructions to access your remote lab (Tuesday 4-6pm):

1. Go to the **ON-LINE LAB (Tue 4-6)** channel on your **CN4001/CD4001 Software Development Microsoft Teams** site by clicking [here](#).
2. Wait for your tutor to start the lab session. To join the session, click on the **“Join”** button that will appear when your tutor starts the session.

CD/CN4001 Lab Sheet (Topic 9 – Implementing Classes)

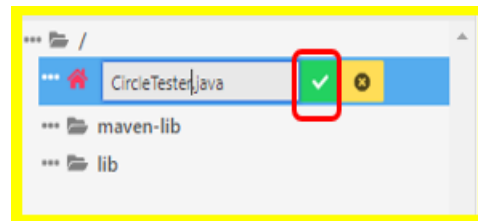
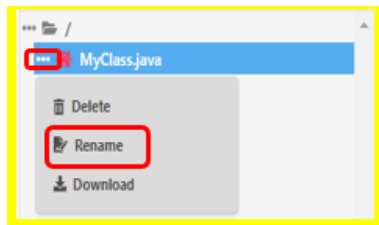
JDoodle

Open the web-based Java IDE called **JDoodle** [here](#).

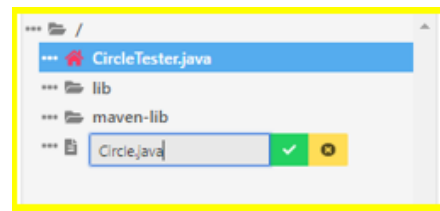
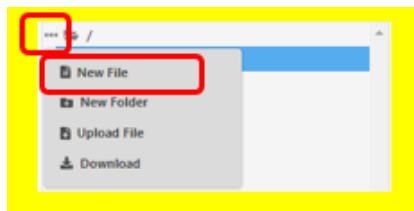
- a) Select the **Advanced Java IDE** interface:



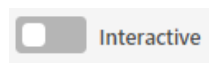
- b) In the default **MyClass** program provided, delete the default code in the **main** method and rename the class name to **CircleTester**.
- c) Change the file name in the project window from **MyC|ass.java** to **CircleTester.java** also.



- d) Add a **second file** into this project and call it **Circle.java**:

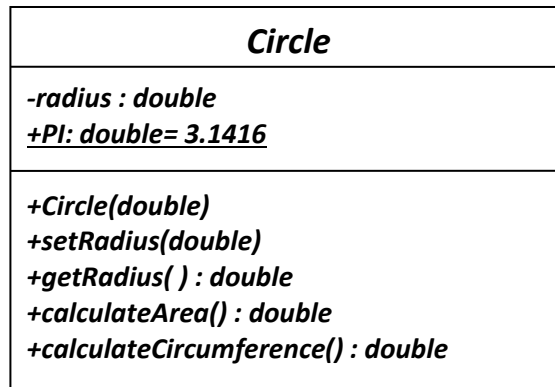


To allow for user input also slide the **Interactive** slider to the **on** position.



ASSESSED TASK: 4 marks

A UML design for a **Circle** class is given below:



Notice, the value of PI is given as a **class constant**. For this week's task we will implement and test this **Circle** class.

- Add code into the **CircleTester** program to print the value of PI using the class constant.
*Remember to **run the CircleTester class** (as it contains a main method) **not the Circle class** (as it does not contain a main method).*
- Go back to your **Circle** class and add the *constructor* and *getRadius* methods.
- Add code in the **CircleTester** program to create a **Circle** object, **c1**, with a radius of 4.5. Then use the *getRadius* method to display this radius.
- Complete the code for the **Circle** class by implementing the *setRadius*, *calculateArea* and *calculateCircumference* methods. Remember:

Area = PI x radius x radius	Circumference = 2 x PI x radius
------------------------------------	--

- Modify the **CircleTester** program to display the area and circumference of the **c1** Circle object by using the *calculateArea* and *calculateCircumference* methods.
- Add some Javadoc comments into this program and the Circle.java file.
- Download the **Circle.java** and **CircleTester.java** files from **JDoodle** and then upload both files to **Moodle** via your submission link.