 **CP2406 Programming-II: Practical-1**

This document has been prepared by Dr. Dmitry Konovalov for James Cook University. Updated 3 August 2017.

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**Instructions for on-campus version:**

* **WHEN**: Teaching week #2 at JCU; Teaching week #1 at JCUS/JCUB (scheduled after lectures)
* **DURATION**: two hours
* **ATTENDANCE**: compulsory (students must attend). You (student) ***must sign/initial the attendance sheet*** provided by your instructor.
* **MARKING [1 mark]**: Complete the tasks from this practical and show the completed tasks to your instructor. Each completed practical is awarded **ONE participation mark** towards the participation assessment component of this subject.
* **EARLY SUBMISSIONS**: You are encouraged to attempt (and complete) some or all of the following tasks ***before*** attending the practical session.
* **LATE SUBMISSIONS**: You may finish the following tasks in your own time and then show your completed tasks during the following week practical. **The main intent here is to encourage you as much as possible to complete all practicals**. ***If you are late by more than one week***, you will need a valid reason for your instructor to be awarded the marks.

**Instructions for off-campus/online version**

* WHEN: Teaching week #2 at JCU; Teaching week #1 at JCUS/JCUB (scheduled after lectures)
* DURATION: two hours
* ATTENDANCE: compulsory (students must attend). You (student) ***must sign/initial the attendance sheet*** provided by your instructor.
* MARKING: Complete the tasks from this practical and show the completed tasks to your instructor.

**TASK-1: Java Editor: IntelliJ IDEA [15-30 min]**

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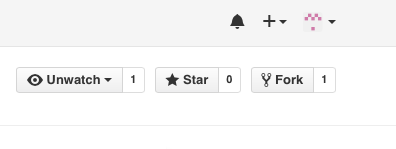
* JetBrains offers free access for JCU students to the **Ultimate** Edition of Intellij IDEA. Signup here: <https://www.jetbrains.com/student/> using your JCU email address.
* Alternatively, you could use the **Community** Edition. To install it on your personal computer, go to <https://www.jetbrains.com/idea/download/> and download (and then install) the **Community** Edition.
* Locate the installed IntelliJ program on your personal or university computer and launch it.
* *NOTE: Software and websites are regularly updated. If any of the links are broken or referred to an older version of IntelliJ, please Google “hello world in IntelliJ tutorial”.*
* Watch the first two Getting-Started tutorials from <https://www.jetbrains.com/idea/documentation/> :
  + 1) Running-IntelliJ-for-the-first-time tutorial <https://www.youtube.com/watch?v=L_jXj0XTwSg>
  + 2) Finding your way around IntelliJ <https://www.youtube.com/watch?v=X49xqVDR8VQ>
* Work your way through the help document on how to create and run your first java program: <https://www.jetbrains.com/help/idea/creating-running-and-packaging-your-first-java-application.html>
* Show your “hello world” program running to your instructor to be marked off for this task.

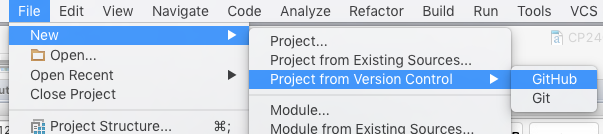
**TASK-2: GitHub [15-30 min]**

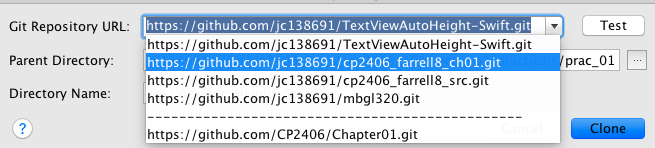
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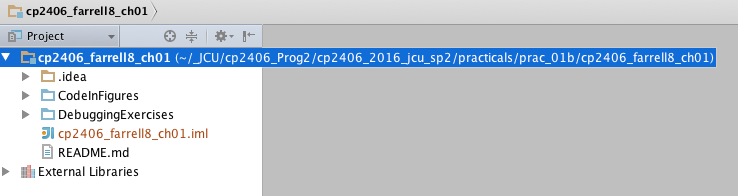
* In this subject we will be using GitHub for all source code management.
* Sign-in (or sign-up) to g <https://github.com/>
* NOTE: All github repositories are public by default. You need to apply for private repositories as a student (if you have not done so already), see <https://education.github.com/guide/private_repos> .
* Work your way through the help document on how to connect your IntelliJ to your GitHub account: <https://www.jetbrains.com/help/idea/using-git-integration.html>
* You should have some knowledge about git-repositories from other subjects (e.g. CP1404-Programming-1). If however, you feel you may need a re-fresher, please work through the github-hello-world tutorial, see <https://guides.github.com/activities/hello-world/> .

**TASK-3: Connecting Github and IntelliJ [15-30 min]**

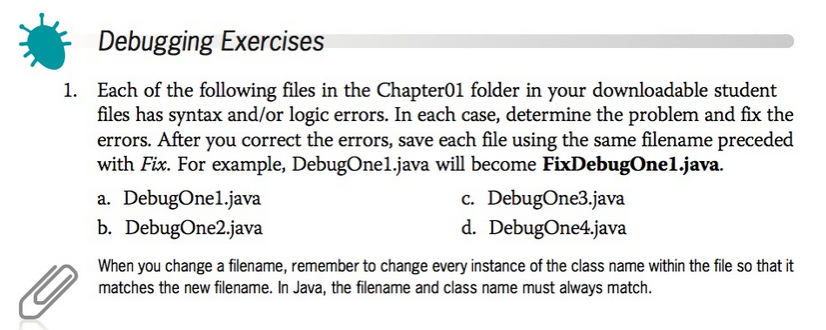
* Sign-in (see task-1 above) to your github account and then click <https://github.com/CP2406Programming2/cp2406_farrell8_ch01> repository.
* **Working with GitHub:** You need to make a copy of this repository so you could modify it. This is done by clicking “Fork” (in the upper left corner of the repository page)  
  + 
  + For more help with “forking”/copying, see <https://guides.github.com/activities/forking/> (or google “how to fork on github”)
  + NOTE: You do no need to make “Pull-requests”. All repos in these subject practicals are for distribution purpose. That is, you do not want your solution source code to be “pulled” into the master copy.
* **Connecting IntelliJ:** Now you should have your own copy (repo) of the source code for this task. ***Please read carefully now!*** It may be confusing, but what you want to end up with is your solution to be ***saved into your github account***.
  + Relevant IntelliJ help page is <https://www.jetbrains.com/help/idea/using-git-integration.html>
  + Start IntelliJ; Select “Check out from Version Control”, and “GitHub”
  + 
  + If you already have IntelliJ running, go to the Menu and select File:ProjectFromVersionControl:GitHub

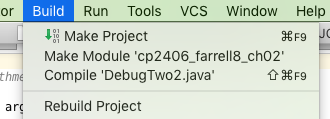
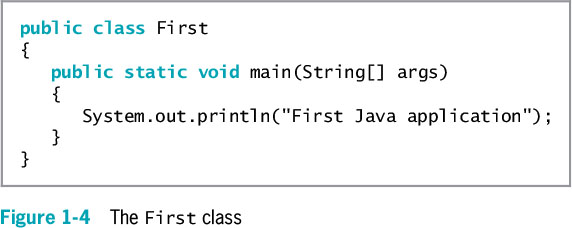


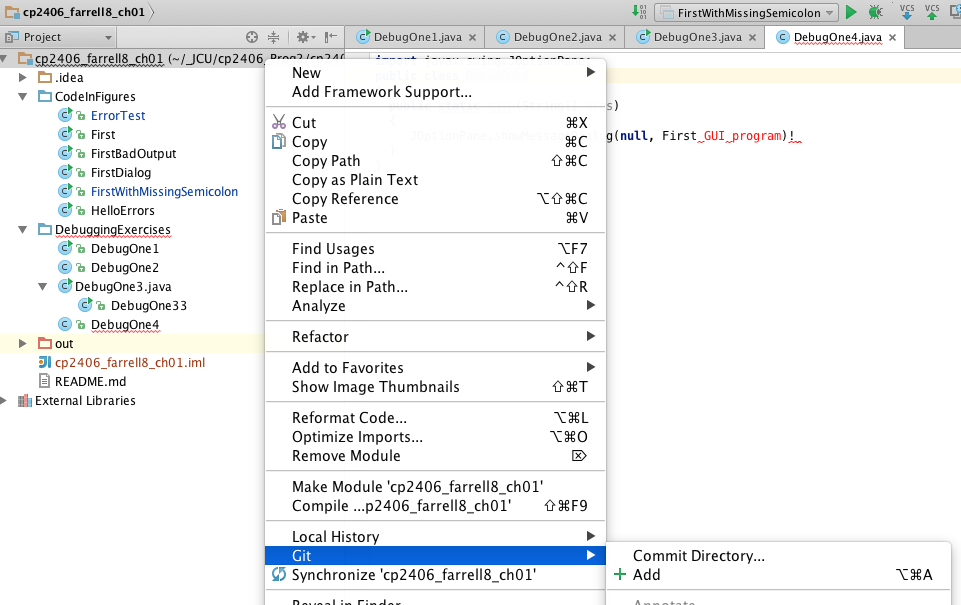
* + You will be presented with a few steps, where you must enter ***your github login details***.
  + Once IntelliJ connected you to your github account, you should be able to select today’s prac. Select and click “Clone”.
  + If you do not see “cp2408\_farrell8\_ch01.git”, then you did not forked/cloned the master repo from <https://github.com/CP2406Programming2/cp2406_farrell8_ch01> . Go back to the beginning of this Task-3 and try again.
  + IntelliJ will present you with the new-project-wizard pages. Accept all defaults and you should end up with something like this:



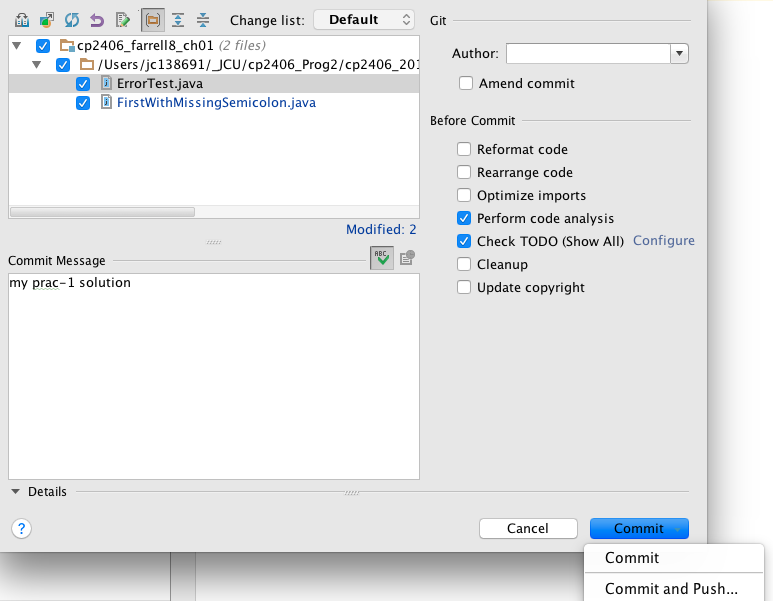
**TASK-4: Chapter-1 Debugging Exercises [15-30 min]**



* The above description of the debugging exercises is from the textbook.
* Try to build (aka “Make Project”) your chapter-1 project:  
  
* If needed, see <https://www.jetbrains.com/help/idea/creating-running-and-packaging-your-first-java-application.html> on how to do this.
* IntelliJ will display ***compiling*** errors. Work your way through all of them until all compiling errors are fixed. See the following Figure for help:
* 
* Commit (see <https://www.jetbrains.com/idea/help/committing-changes-to-a-local-git-repository.html> ) and then push (see <https://www.jetbrains.com/idea/help/pushing-changes-to-the-upstream-git-push.html> ) your solution back to your github account.
* If you do not wish to read the help links above, here is an easy way to commit and push the whole project. Right-click on the project name and select Git:CommitDirectory…

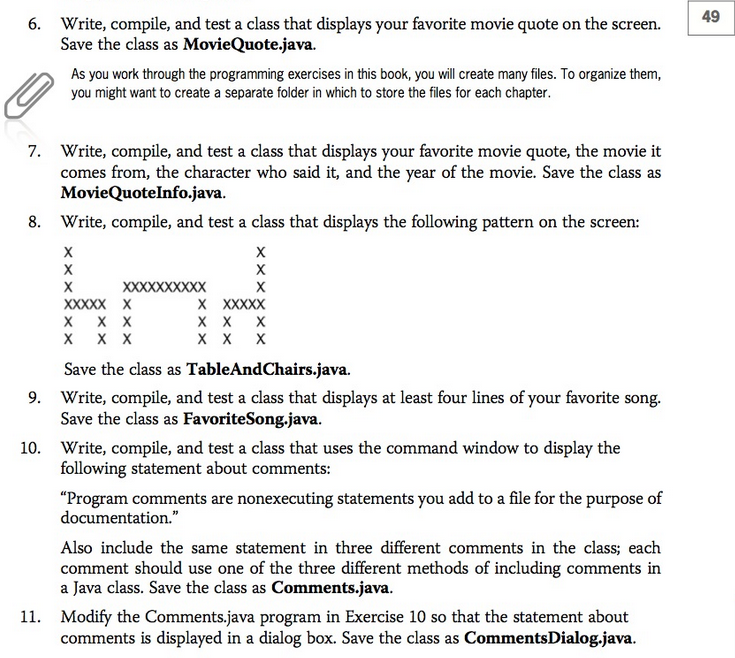


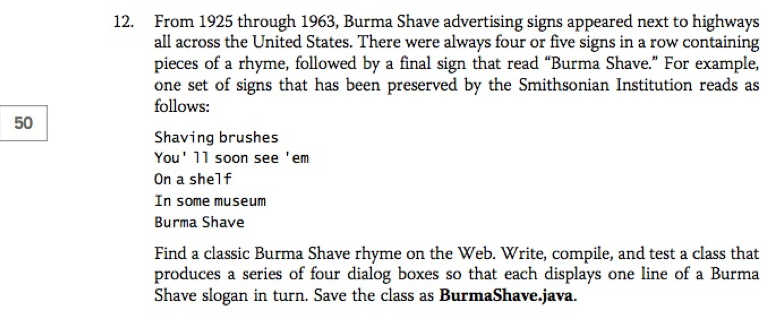
Then Commit and Push in one go (The button “Commit” turns into sub-buttons):



**TASK-5: Chapter-1 Programming Exercises [10-20 min]**

* Complete any ***two*** exercises from the following list, ***or as directed by your instructor***.
* **Learning tip:** Try complete more exercises to learn and practice programming skills. ***Programming is a contact sport!*** You do not become a better programmer by watching others.
* First try to complete the exercises without looking in the textbook (google for Java classes if needed).
* If you need more help, look through the chaper-1 textbook, source code and/or debugging code, <https://github.com/CP2406Programming2/cp2406_farrell8_ch01> (or your own fork).
* If you are still struggling, pick at the solutions, <https://github.com/CP2406Programming2/cp2306_farrell8_prac_solutions/tree/master/Chapter01/ProgrammingExercises> .





=== END OF THIS PRACTICAL ☺ ===