



Computer Science 2B

Practical Assignment 04

2023-08-15

Deadline: 2023-08-22 12h00

Marks: 100

This practical assignment must be uploaded to eve.uj.ac.za **before** 2023-08-22 12h00. Late or incorrect submissions **will not be accepted**, and will therefore not be marked. You are **not allowed to collaborate** with any other student.

Make use of [proper coding conventions](#) and [documentation](#). Marks will be deducted if these are not present. Your submission should include a batch file.

The reminder page includes details for submission and queries. Please ensure that **ALL** submissions follow the guidelines. The reminder page can be found on the last page of this practical - read the reminder page carefully.

In line with the upcoming Heritage month and to celebrate the various cultures that are found at UJ, the Academy of Computer Science and Software Engineering has asked you to develop an innovative network system. The system will allow staff and students to upload images of their favourite traditional dishes. The system should also allow users to retrieve any of the uploaded images. You are required to develop both the server and client to enable users to upload and download images.

Server:

- The server should run on port 9876 and wait for connections.
- The server should make use of a text file that will store a list of image files with corresponding IDs
- The server should handle the following requests from a client:
 - PULL - return a list of image file names and IDs
 - DOWNLOAD <ID> return the requested image
 - UPLOAD <ID> <Name> <Size> <Image> - store the image and add it to the text file. If successful reply with "HAPPY" else return "SAD"

Client:

- A user-friendly GUI should be created for the client side.

- The client should allow the user to select and upload an image to the server
- The client should allow the user to request a list of images that are available
- The client should allow the user to enter an ID after which the corresponding image is retrieved from the server and displayed to the user

Note: There is a data folder included under "Additional files" for you to add into your project for testing purposes.

Marksheet

1. Server - Returning of image files list	[10]
2. Server - Uploading of an image	[15]
3. Server - Returning requested image	[15]
4. Server - Handling simultaneous requests	[5]
5. Client - Uploading an image	[10]
6. Client - Requesting image list	[5]
7. Client - Retrieving and display of image file	[15]
8. Commenting (normal and JavaDoc commenting)	[5]
9. Graphical User Interface - JavaFX	[10]
10. Correctness of Solution	[10]

NB

Submissions which **do not compile** will be capped at 40%

The awarding of marks is dependent on the student's ability to effectively justify and demonstrate understanding of the practical work presented.

Execution marks are awarded for a correctly functioning application and not for having some related code.

Reminder

Your submission must follow the naming convention as set out in the general learning guide:

SURNAME_INITIALS_STUDENTNUMBER_SUBJECTCODE_YEAR_PRACTICALNUMBER

Your submission must include the following folders:

- `bin` - (*Required*) - Should be empty at submission but will contain runnable binaries when your submission is compiled.
- `docs` - (*Required*) - Contains the batch file to compile your solution, and any additional documentation files. All documentation files must be in **PDF** format. Your details must be included at the top of any **PDF** files submitted. **Do not include generated JavaDoc.**
- `src` - (*Required*) - Contains all relevant source code. Source code must be placed in relevant sub-packages! Your details must be included at the top of the source code.
- `data` - (*Optional*) Contains all data files needed to run your solution.
- `lib` - (*Optional*) Contains all libraries needed to compile and run your solution.

Every submission **must** include a batch file that contains commands which will:

- Compile your Java application source code.
- Compile associated application JavaDoc.
- Run the application.

Do not include generated JavaDoc in your submission. All of the classes/methods which were created/updated need to have JavaDoc comments.

Note that only **one** main submission is marked. If you have already submitted once and want to upload a newer version, then submit a newer file with the same name as the uploaded file in order to overwrite it.

Bonus submissions should be uploaded separately and clearly named as the bonus submission - which will then be marked accordingly.

It is important to make use of **each practical opportunity** as preparation for the practical semester test (ST2). The practical assignments also contribute to the **Practical Component Mark** (PCM). There will be 9 practical assignments (P00-P08) this semester which will be released on a weekly basis except when tests are being written.

The process to **query** your practical assignment with an assistant is discussed in the learning guide as well as the first practical lecture.