RMIT UNIVERSITY

COSC 1114 Operating Systems Principles
Semester 2, 2022
Assignment 1

Assessment Type	group assignment. 4 members See Canvas for submission details Marks awarded for meeting requirements as closely as possible. Clarifications/updates may be made via announcements/relevant discussion forums.
Submission Due Date	End of week 13
Marks	40 (40% of semester)
Version	1.0 Original 1.1 Consultation copy 1.2 Updated for Rubric consult 1.3 Rubric adjusted 1.4 Final version

1. Investigation Overview

Large and medium scale projects have a certain commonality in terms of design. A lot of this is inherited from the development environment for the platform on which the application was first developed. This is why an established engineer with cross platform experience can usually recognize a project ported from one environment to another.

In this assignment, your group is to pick a project in any one of the Linux platforms for which group members have some expertise. The project should be available for download on the conventional channels for that platform, be it on of the Linux distros. In addition, the source code should be available for that project. Finally, the project should employ some form of multitasking/programming, or any other topic covered in OSP in its ordinary operations.

The group task is to rebuild the project from its supplied source, according to its instructions. However, the group should make a visible change to it ("software tagging?") to demonstrate a successful build.

The deliverables are to make a video showing a short description of what the project is about, a demo of the rebuilt project, a description of the build environment and how it relates to the platform, and a walk through of part of the source code demonstrating how multitasking is used. Video length is about 20 minutes.

2. Assessment Details

The methodology for this assignment is straightforward.

1. Select a project with the following characteristics:
   a. It is available in deployable format from the standard repository for that platform
   b. If is also available in source form Ideally in GitHub, or equivalent repo such as SourceForge.
   c. Group members have the collective expertise to rebuild the project.
   d. The project employs some form of multi-threading/programming as well some other functionality described in this course (for example):, memory or file management, I/O or protection methods).
      i. This does NOT include its use in the user interface (for example threads only used as event handlers for buttons)

      ii.   It must be part of what the project does

     iii.   The source code must have multiple directories and layers of source

  e. The project has to be of "reasonable size"

      i.   The source code must have multiple directories and layers of source

      ii.   There should be many contributors to the project

2. The group is to build the project with some minor changes, for example, to modify some aspects, in order to demonstrate a successful build. For example, to embed the words "OSP" into a screen or window title.

  a. Most such projects are built using "GNU Automake" tools. This is the familiar "Configure / make / make install" process.

  b. You are to build using the "Configure –prefix=<your home dir.>/project name". In this case, the make Install will install the binaries into your home dir., so no admin rights are needed. And ensure all files are stored locally,

  c. If "autotools" is not used, then please implement the equivalent.

3. The group builds a video with the following components (with suggested timings):

  a. A short intro describing the project – particularly the multi-threading/programming aspect   - 3 mins

  b. A short description of the platform and build environment   - 3 mins

  c. A demonstration of the rebuilt program in action, highlighting the changes made - 3 mins

  d. An annotated walk-through of the parts of the code doing the multi-threading/programming, including any background explanations needed to understand this.   - 5 mins

  e. A description of what aspects of the material taught implemented in this course can be found in the project, and where/how   - 3 mins

  f. A short summary of any issues or problems encountered along the way.   - 2 mins

  g. Last slide should be a list of references for all the source material used.   - 1 min

3. Learning Outcomes

This assessment relates to the following course learning outcomes:

- Evaluate and report appropriate design choices when solving real-world problems
- Analyse the key trade-offs between multiple approaches to operating system design.

4. Submission

Submit the following:

1. Group Membership contribution Contract using supplied template. Due end of week 10 for the group. Group membership cannot change after this date.
2. Video file and any presentation materials, such as PPTX. Due end of week 13.
3. Peer Group activity assessment, as per A ms Form
   a. Note that SUBMISSION OF THIS FORM IS REQUIRED FOR EACH MEMBER OF THE GROUP INDIVIDUALLY.
4. **When you submit work electronically, you agree to the assessment declaration:** https://www.rmit.edu.au/students/student-essentials/assessment-and-exams/assessment/assessment-declaration

5. Academic integrity and plagiarism (standard warning)

It is your responsibility to ensure that all files you submit are your own work. We will check your submission against other submissions using automated software to check for plagiarism. You must agree with the RMIT Assessment declaration available here:

Academic integrity is about honest presentation of your academic work. It means acknowledging the work of others while developing your own insights, knowledge and ideas. You should take extreme care that you have:

- Acknowledged words, data, diagrams, models, frameworks and/or ideas of others you have quoted (i.e. directly copied), summarized, paraphrased, discussed or mentioned in your assessment through the appropriate referencing methods,
- Provided a reference list of the publication details so your reader can locate the source if necessary. This includes material taken from Internet sites.

If you do not acknowledge the sources of your material, you may be accused of plagiarism because you have passed off the work and ideas of another person without appropriate referencing, as if they were your own.   RMIT University treats plagiarism as a very serious offence constituting misconduct. Plagiarism covers a variety of inappropriate behaviors, including:

- Failure to properly document a source
- Copyright material from the internet or databases
- Collusion between students

For further information on our policies and procedures, please refer to
https://www.rmit.edu.au/students/student-essentials/rights-and-responsibilities/academic-integrity

6. Marking Guidelines

A rough marking guide is described below. A more detail marking rubric will be attached to the assignment section in Canvas, and it will be the final guide. In all cases, in giving you less than full marks, your marker will detail the problems in the provided implementation.

Rubric

#	Marks	Title	Details
1	10	Presentation Basics	+3 = Evocative (Catchy) Title (subtitle is Project name). +2 = List of contributors and their roles in this work on the video. +3 = contributors live Images during video (-5 if missing) +2 = Presence of Overview and/or References.
2	10	Checklist	+1 Title + Authors +1 Attribution +1 Introduction +1 Platform and Build environment +1 Program demo showing alterations +1 Annotated Code Walk-through +1 Description of OSP relevance +1 Difficulties / Issues +1 Inclusion of Contribution contract (-5 if not included)

			Last ITEM ASSIGNED PERSONALLY, NOT TO THE GROUP. +1 Submission of peer review FORM (-5 if not included)
3	10	Coherence	+2 Concise description of project emphasizing OSP relevance +2 Build process and environment well described +3 Code walk-through well explained +3 Execution demonstration demonstrating OSP relevant functionality
4	10	Communication	+3 Good flow of dialogue with sections being introduced and followed throughout. +3 Quality of presentation graphics, where relevant (mostly at start in intro) +4 Was the information presented accurate? Did the presentation suggest a good understanding of the project and its relevance to OSP?