AE1PGA Coursework 3 - Communication in Computer Science

Introduction

This is the third AE1PGA Coursework. It is worth **20% of the module mark**. It requires you to produce to short video explaining a particular concept in C programming that you have been assigned by the module convenor. The deadline for this exercise is **16:00 on Thursday 21st of December 2017**.

Read the entire document before beginning the exercise.

If you have any questions about this exercise, please ask in the Q&A forum on Moodle, after a lecture, in a lab, or during the advertised office hours. If any questions requires this exercise to be clarified then this document will be updated and everyone will be notified via Moodle.

Version History

- Version 1.0 - 2017-12-07 - Original version.
- Version 1.1 - 2017-12-09 - Added explicit link to partner/topic page on Moodle.

Submission

You must submit a single video file containing your explanation of your assigned concept to the Coursework 3 submission activity on Moodle. The filename should be your student id number then a hyphen then the concept name you are explaining then the video format extension (eg, "6512345-memory.mp4").

The video can be a maximum of 180 seconds in length. If it is any longer, it will be penalized as described in the marking section.

The video must play using VLC in the computer labs. Videos that don't play will receive a mark of zero.

The video must be at last 720p resolution at 24 or 30fps but may be higher if you wish. Be aware that Moodle will reject very large files (greater than 250 MB) and that it may take a long time to upload multi-megabyte files. Submit early to ensure your submission process will finish before the deadline.

You may submit as many times as you wish before the deadline (the last submission before the deadline will be used). After the deadline has passed, if you have already submitted your exercise then you will not be able to submit again. If you have not already submitted then you will be allowed to submit **once**.

Remember that you can only access the Linux server from the designated labs in SEB and SSB and that these labs are also heavily booked for teaching. **Do not** wait until the last moment to submit as you may find you cannot get into any of the rooms to access your source code files. Not being able to access the machine due to lack of planning is **not** an extenuating circumstance. If you choose to use the VDI then the same rules apply. Equipment occasionally breaks down, is full, inaccessible or unreliable. You need to plan ahead to allow time for foreseeable things outside of your control going wrong.

Late submissions: AE1PGA late submission policy is **different** from the standard university policy. Late submissions will lose 5 percentage points **per hour**, rounded up to the next whole hour. This is to better

represent the large benefit a small amount of extra time can give at the end of a programming exercise. No late submissions will be accepted more than 24 hours after the exercise deadline. If you have extenuating circumstances you should file them before the deadline.

Plagiarism

You should complete this coursework together with your assigned partner. You may discuss high-level details of what you think may be appropriate to include in your explanation, but the actual words and diagrams (if any) used must be your own. Using an explanation from a book, textbook, online video, lectures, or anywhere else, and submitting it as your own is an academic offense and will be punished in accordance with the university policy on academic misconduct (see your student handbook and the University Quality Manual). This may include a mark of zero for this coursework. If I have concerns about a submission, I may ask you to come to my office and explain your work in your own words.

Marking

The marking scheme will be as follows:

- **Understanding (0-3 marks)** - How accurate is your understanding of the concept you were asked to explain?
  You lose marks here if you make mistakes in the actual concept you are explaining or if it is clear from your explanation that you misunderstand parts of the concept, or are not aware of the extent of the concept (ie, not realizing other things are parts of the concept).
- **Explanation (0-4 marks)**- How well did you explain the concept, based on the understanding of it you have shown?
  This relates to how you have decided to explain the concept, what parts you have focused on, what analogies used (if any), if diagrams used are appropriate (if any), the order you decided to explain things in, etc. The explanation should be targeted to an average student at the beginning of Qualifying Year who might have some basic programming experience but not in the C programming language, therefore any pre-requisite knowledge that would not be known by such a student should be explained as well.
  This section is marked independently of "Understanding", so you can still get marks here even if you misunderstood the topic. For example, you may have misunderstood that "black light" is emitted by every object and that is why rooms with no windows are dark. If you explain that idea appropriately and well (what it means, how it works, the implications, etc) then your explanation mark will be high but your understanding mark will be low (because darkness is caused by something else).
- **Communication (0-3 marks)** - How well are you able to communicate?
  This covers the communications and presentation skills, and the appropriateness of what you have chosen to do to the medium (a short, 3 minute video with just a whiteboard). Aspects examined include clarity of speech; volume and pacing; vocabulary chosen; professional appearance; confidence; if a whiteboard is used, is it easy to see (no distracting reflections, writing clear); etc.

For *Understanding* and *Communications* above, the marks correspond to the following levels:

- 0 - Student shows very little or no ability in the area.
- 1 - Student shows some ability in the area but is below the standard expected.
- 2 - Student shows the appropriate level of ability in the area.
- 3 - Student shows significantly more ability in the area.

For *Explanation* above, the marks correspond to the following levels:

- 0 - Student shows very little or no ability to explain.
- 1 - Student shows some ability to explain but is below the standard expected. Often the viewer would already need to understand the topic to understand some or all of the explanation offered.
- 2 - Student shows the minimum necessary ability to explain the core points but does not explain beyond them. Examples, focus or level of detail may be poor in some areas.
- 3 - Student shows significantly more ability to explain the core points and some secondary points. Examples, focus and level of detail are of a higher level than *2* but still have some weaknesses.
- 4 - Student shows exceptional ability to explain the core and secondary points in the appropriate level of detail, making very good use of examples/analogies/etc to highlight and explain difficult points of the concept in a straight-forward way.

The total mark will be the the sum of the three sections (0-10), converted to 0-100%.

If the video exceeds 3 minutes (180 seconds), you will be given a 1 mark penalty and everything after 180 seconds will be ignored.

You will be given a mark of zero if:

- you do not talk about the concept you were assigned.
- you submit a video which cannot be played using VLC on the university lab computers.

This coursework requires you to work with an assigned partner. If you refuse to work with your assigned partner, this will fall under academic misconduct and disciplinary action may be taken against you. If you have problems with your partner please contact the module convenor as soon as possible.

Late Submissions: see submission section above.

Task

Communication is vital in all aspects of business and science, including Computer Science. To successfully communicate with an audience, you must be able to work out the level of understanding they have and be able to adjust your communication style and explanation to that level. For example, a non-technical business customer might be explaining their requirements for a new software system they want you to build and you have to extract the details, and convey what is and is not possible, while using concepts, analogies, and language they understand. The business-person is not stupid, it's just that their expertise is in some other area. They are also not a child; they can understand complex ideas after they have been explained to them. As another example, scientist need to be able to communicate with the general public about areas in which they work. Current examples include what AI or data-mining of social network data actually means and identifying areas of concern while clarifying misconceptions. This coursework will exercise your communication skills in explaining your understanding of a particular C programming concept to students who have had some basic introduction to programming (ie, other PGA module students).

You will be assigned a concept you have to explain. You will then have to record a short video (maximum 3 minutes or 180 seconds) in which you will have to explain that concept. The audience will be students starting Qualifying Year at UNNC with some basic programming experience but no experience of C. You should decide what you think the important points related to that concept are, and how to explain them to the audience.

You can find the partner and topic assignment list on the Moodle page here.

The video must only contain you talking to the camera and, optionally, a whiteboard behind you that you can write or draw anything you wish on. The whiteboard must be blank at the beginning of the video (no pre-prepared contents). The video must be in a single "take". You are not allowed to edit the video, add

effects, use slides, animations, computer displays, music or sound effect track, or any other forms of video editing. It should just be you explaining the concept in a similar way to a lecturer explaining an answer to you with a whiteboard in a lecture or seminar.

The recording should be done with a smartphone or similar device. If you do not have access to such a device, please contact the module convenor. You will film your partner and they will film you. The video file should be playable using VLC on the computers in the labs. Depending on the recording options, you may need to convert the video to a different format after recording so that it plays in VLC - this is allowed (or check your recording settings on your device and record in a compatible format to begin with). The recording must be at least 720p at 24/30 fps, although you can record higher quality if you wish.

Hints

- Prepare! Don't just stand in front of the camera and think up what to say live. Brainstorm ideas, try alternatives, even write practice scripts and think if your explanation makes sense. If you are going to give examples, think of them in advance so that they illustrate the point you are trying to make well.
- Practice, practice, practice! You can film the video over and over again, so you do not need to get it right on the first take (although be aware that you can not expect to unreasonably use your partners time or demand they come to record something without planning ahead).
- You can practice alone in front of the mirror or recording yourself with a webcam so that you are ready when you meet with your partner.
- Make sure you speak loudly and clearly enough to be easily understood in the recording. Don't submit the video without going through it all to make sure it is clear and audible, and running in VLC on the lab computers.

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