CSC3031
Project Skills: Aim(s) and Objectives

Dr Simon Bowen

(Reminder) Your project is…

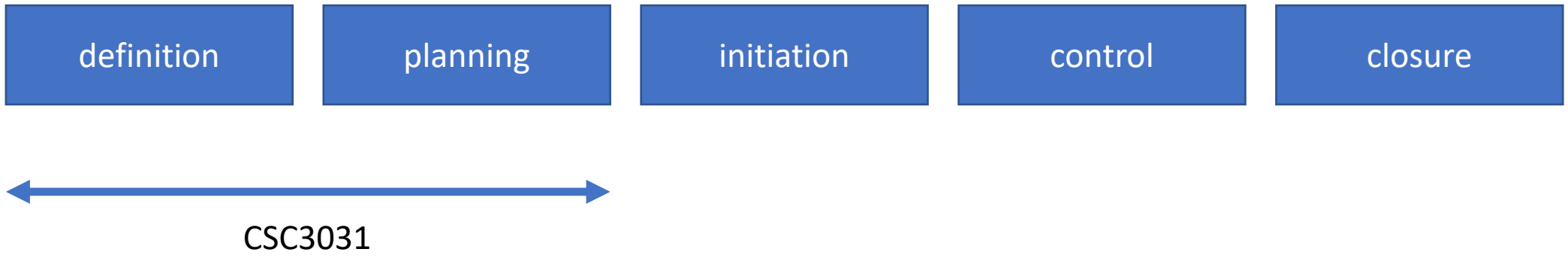
- Not a large piece of coursework
- Demanding, challenging and rewarding
- The culmination of 3 or 4 years of study
- An opportunity to show what you have learned
- An opportunity to extend what you have learned
- A ‘springboard’ to what next, a showcase for employers

Your project may also be…

- Exciting
- Big (and a little scary?)
- Unformed (at this stage)

So… you need to plan

The project process



Where to start?: Aims and Objectives

- Why are aims and objectives important?
- What are aims and objectives for?

Why Aims and Objectives?

- From general to specific
- To set priorities
- Make it easier to then break down into tasks
- Useful in project management
- Useful in project evaluation
- Something to discuss, reflect upon (with your supervisor)

Project Proposal –marking guidelines

Proposal should consist of the following sections:

- Motivation and rationale: Why is the project worth doing? What is the problem it is trying to solve? Which need is being addressed?
- Aim (or hypothesis) and objectives: What will the project try to accomplish? Which key objectives will need to be achieved in order to realise the overall aim or prove/disprove your hypothesis?
- Background: a table summarising key background sources and identifying their relationship to the project at hand
- Diagrammatic work plan: a diagra roject will be carried out, e.g. which activities/tasks will be carried out v
- Brief explanation of the work plan: uctured as it is?
- References: a list of references tha ces used in the background section), correctly cited

Motivation and rationale	10%
Aims and objectives	20%
Background	30%
Diagrammatic work plan	15%
Explanation of work plan	10%
References	10%
Structure and form	5%

Your starting point - project idea/outline

- “Investigate attitudes towards self-tracking technologies for supporting wellbeing. Develop and evaluate a new digital tool (such as a personal or wearable device) that enhances daily or routine practices for achieving wellbeing.”
- “Explore and implement methods to make video games more accessible for colour blind players.”

Your starting point - project idea/outline

- You need to turn this into some USEFUL to help you plan your project
- Define (with the help of your supervisor) the project's aim (or hypothesis), objectives, major tasks and milestones, and plan how to achieve them
- Go back to the one-paragraph outline:
  - Do you and your supervisor have the same understanding of it?
  - Has you or your supervisors' understanding changed? (What a supervisor has written down might be different to what they want...)
  - Can you align it better to your interests and resources?

What are aims and objectives?

- **Project aim** - should be a single, high-level statement of the hypothesis the project is investigating, or what the overall goal of the project is. e.g. “reduce security risks that threaten internet voting”
- **Objectives** are smaller sub-goals that will help you achieve your project’s aim. If you can achieve all your objectives, then you should have fulfilled your aim

Aims

Could also include:

- Why the research is needed (motivation) – ”enhance wellbeing”
- Where the research is needed (context) – “self-tracking tech”

Try starting with a question:

“Can wearable devices that track routine behaviour enhance wellbeing?”

Objectives

- Should contribute to the hypothesis or aim
- Each objective should be a small sub-goal for the project
- You will return to your objectives to evaluate your project
- 4 to 6 objectives is usually enough – fewer suggests inadequate depth, and more tends to be a list of requirements/tasks for the project.
- Personal objectives can be included as well as technical ones.

Objectives examples

“Investigate attitudes towards self-tracking technologies for supporting wellbeing. Develop and evaluate a new digital tool (such as a personal or wearable device) that enhances daily or routine practices for achieving wellbeing.”

- Prototype a wearable device to enhance daily practices

“Explore and implement methods to make video games more accessible for colour blind players.”

- Identify accessibility issues faced by colour blind players

Objectives should be SMART

- Specific – enough detail of what is to be done
- Measurable – progress can be measured
- Appropriate – relevant to the aim, goal of the project
- Realistic – can it be done in the time available?
- Time-related - will you be able to assign a duration (in planning)?
- Objectives should not be requirements for a system, nor low-level tasks

e.g. “Student Voices: Documenting the First Year Student Experience On- line”

Aims and Objectives:

- Good web design
- Include possible technologies
- Collect data

No aim...
No objectives – just initial ideas and tasks

Improvement?
Aim: To provide a means of recording student experience in first-year

Objectives:

- Review common problems experienced by first-year students
- Establish possible technology options for recording experiences

e.g. “Supporting Students Learning Techniques for Problem Solving”

Aims:

To develop a tool to support students learning techniques for problem solving.

Objectives:

- Select a range of problems that can be used to illustrate problem solving.
- Allow a user’s progress with the tool to be recorded.
- Provide useful user feedback.
- Incorporate ideas from computer Aided learning.
- Provide a wide range of problems at different levels.
- Ensure the tool is easy to use.
- Tool should be extendable i.e. easy to add new problem scenarios.

Aim

A good, well-defined aim.

Objectives

Start off well but then becomes a requirements list for the tool.

Improvements?

Objectives – replace the last 2 objectives or even remove them.

Objectives should not be requirements…

Aim: Investigate the use of software to keep users motivated to carry out physical activity throughout their life.

Objectives:

- Allow users of the gym to record their activities in a simple way.
- Allow the user to get meaningful analysis of his physical activities that permits him to review past performance as well as analyses what he should be training next.
- Allow remote logging of exercises by building a web-based version.
- Allow the user to synchronise the exercises entered online with the version at home.
- Build an Android phone application.

Aim should be a high-level summary, of single research question.

Aims:

- To model and simulate a large scale election using the FOO Scheme.
- To analyse the performance and scalability of the e-voting scheme.
- To analyse the vulnerabilities of the scheme including the affects of:
- Multiple Voting
- Denial of Service Attacks
- Replay attacks

Objectives:

- Research current schemes available including published analysis of those schemes.
- Implement the FOO e-voting scheme using the Java programming language including a system to simulate an election.
- Simulate and analyse a large scale election

Instead…

Aim:

- An analysis of the performance, vulnerabilities and scalability of the Fujioka Okamoto Ohta (FOO) e-voting scheme

Objectives:

- Research and summarise published analysis of current e-voting schemes
- Establish candidate set of vulnerabilities to investigate
- Implement the FOO e-voting scheme
- Use the implementation to simulate a large scale election
- Analyse the performance and vulnerabilities of the FOO implementation

How about this?..

Aim: To investigate how the use of spatial regions on amalgamated table-tops can improve productivity and user interaction during meetings through the use of prototypes and participant observation

Objectives:

- Investigate current applications/case studies of the use of interactive tabletops.
- Understand the needs of different types of meetings, such as roles, activities, responsibilities and how they need to be catered for.
- Conduct a user study through participant observation.
- Collect further qualitative information from users through the use of questionnaires and interviews to elaborate on desires/worries/issues with technology.
- Produce a paper prototype based on user study results and simulate operation with the user group, using the "Wizard of Oz" approach to enhance the user experience.

Using your aims and objectives

- Useful beyond your Project Proposal
- Don’t just put them aside, monitor as you go through
- A ‘starting point’ – your beginning intentions
- You may need to revise
- You will return to at the end to evaluate your project

What next…

- Meet up with supervisor
- Discuss the one-paragraph outline.
  - An opportunity to refine it to your interests, capabilities and resources.
- Write a first version of your aims and objectives.
  - Start with something, then refine.
- Book a tutorial slot, if you want further advice

Further Reading

Dawson, (2015) Projects in Computing and Information Systems:

- Chapter 4, section 4.2 pp 65 – 68
- Chapter 3, section 3.3.3 pp 54, 55
- https://libsearch.ncl.ac.uk/permalink/f/1jraif3/NCL_ALMA51117057660002411
- https://www.discoverphds.com/advice/doing/research-aims-and-objectives
- https://research-methodology.net/research-methodology/research-aims-and-objectives/