Software Development Project

Barry Denby

Griffith College Dublin

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Importance of the Project

- Worth 25% of your overall degree.
- Has a huge effect on your degree classification (H1, H21, H22 etc).
- You will want to put a lot of effort into this considering the effect it will have on your final grade
- Don't ignore this and get as much work as you can done

Importance of the Project

- Designed to test your ability to do the following
  - Take a large scale problem
  - Reason about it
  - Design a solution
  - Implement a solution
  - Work through and resolve issues along the way

Importance of the Project

- Designed to test your ability to do the following
  - How well you can manage your time (including working around other modules)
  - How well you cope and deal with issues
  - Your ability to communicate, work with, and agree development actions with your supervisor

Overview of the entire process

- The Software Development Project will run over both semesters.
- It will start with you coming up with a project proposal
  - Either you'll specify a particular idea that you want to work on (preferred)
  - Or specify an area you want to work with (will slow things down a bit as you will need spend start of process working out a proposal)
- Project proposals will come back to myself.
- The faculty will then decide who will supervise you, and will inform both you and your supervisor of this.

Overview of the entire process

- You will meet with your supervisor at least once a week to discuss your project (including showing the work you done the previous week and agreeing what to do for the following week).
- Towards the end of the process you will start to write your thesis dissertation (approx 8,000 to 10,000 words, I have a template for you)
- At the end in late May/early June you will demo your project to demonstrators who will grade your work and will assign you a demo mark.
- Your supervisor will then correct the rest

Overview of the entire process

- I must stress that this time will fly by very quickly.
- Any moment you have spare that is not being used for study or working on assessments or exams should be spent on this.
- Particularly around the Christmas break and after first semester exams have finished.
- Process in a nutshell but will expand on this over the coming weeks and months.

Timeline of the entire process

- The process will run over both semesters
- In semester 1:
  - You will have six seminars with me outlining the entire process
  - You will define your projects and send me project initiation forms
  - You will do all the required technology research and design decisions of your project
  - And if possible start implementation.
- In semester 2:
  - You will be assigned a supervisor
  - Carry out some if not all of implementation
  - Write your documentation
  - Present your project for demonstration

Timeline of the entire process

- Your job this semester is to get an idea of the whole process and define your projects
- The project initiation form is the most important part of this
- You fill out this form with your project idea and it gets submitted to me.
- I will give you feedback on the project idea and will let you know if changes need to be made.

Timeline of the entire process

- I may ask you to refine your idea if I think there is not enough detail in it
- I may ask you to increase the complexity of your idea if I think it is too simple and won't get you a high grade.
- If the proposal seems ok to me I will suggest you start doing your research, design, and possibly implementation in preparation for being assigned a supervisor in semester 2

Timeline of the entire process

- At the bare minimum I would suggest you have the following done by the time you are assigned a supervisor
  - Have researched the necessary technologies including potential alternatives and made reasoned decisions about your choices.
  - Have a full design of how everything fits together and works including any algorithms you need.
  - A start of an implementation.
- Be aware your design may change when you meet your supervisor at first as they may be able to point you in a better direction through their experience.

Assessment

- In terms of assessment there are four areas it will be graded on:
  - Development Process (20%)
  - Supervisor Interaction (10%)
  - Demonstration (40%)
  - Documentation (30%)
- Be aware that if you fail the Demonstration part of this you will automatically fail the entire project.
- These are all interlinked by the way. Each one will affect everything else.

Assessment: Development Process

- Assesses how well and how quickly the project is coming together
- How fast is development being done.
- How well are you handling and resolving development issues.
- Are you hitting your development milestones.

Assessment: Supervisor Interaction

- Assesses your professional interaction with your supervisor.
- Are you showing up to all meetings?
- Are you showing everything that you've done in the previous week.
- Are you able to discuss and agree development direction for the following week in a reasoned and well thought out manner.
- Who is doing most of the discussion in meetings.

Assessment: Demonstration

- Can you present, properly defend, and reason about your software artefact to demonstrators who have not seen your project before.
- Can you justify your design and development decisions
- Can you demonstrate a full understanding of your code.
- Can you reason what would happen if different design elements or technologies are used.
- Will expand on this a lot more closer to the time.

Assessment: Documentation

- Are you capable of accurately and objectively discussing the work you have produced.
- Are you able to document this in a clear, concise, and logical format.
- Are you able to reason about and defend all decisions you have made.
- Are you able to critically and objectively reflect on the entire project.
- Will also expand on this a lot more closer to the time.

Student Misconceptions

- A common misconception that occurs with students is they assume the following:
- **"If I specify as simple a project as possible and implement it 100% then I will score 100%"**
- This is not the case at all.

Student Misconceptions

- The main three criteria projects are assessed on are:
  - Complexity of the idea.
  - Quality and robustness of implementation.
  - The amount of work the student has put in.
- The great projects will score highly in all three.
- The good projects will score highly in some and good in others.
- The bad projects will not score highly in any category.
- Will give you advice on what will affect each.

Things to consider when specifying or implementing a project

- Be careful relying on APIs. The more APIs you use to do the work the complexity and amount of work will reduce.
- Try and avoid projects where you pass data from one API to the next to get work done. i.e. you only define connecting tissue from one API to the next.
- Try to include as much of your own algorithmic work to increase the complexity and work.

Things to consider when specifying or implementing a project

- If at all possible try and avoid three tier CRUD websites.
- This is something you will have mastered by 2nd year.
- Thus it is not considered the most complex or involve a lot of work to get running.
- If you go down this route you will be lucky if you get near a pass mark or anything higher than a pass mark.
- You'll need to do a lot of algorithmic work to bump the complexity if you go this way.

Things to consider when specifying or implementing a project

- Avoid basing your technology decisions purely on the basis of what you already know in an effort to avoid learning new stuff.
- Learning new stuff by yourself is part of the process and you will never be able to avoid this in the rest of your career.
- Research available technologies and find what will be best suited to what you are doing.
- And use what you think is best.

First part of the process

- I will send you a Project Initiation form.
- You fill out your details in the form
- Along with proposed areas you would work with or ideally an idea you want to work on.
- The forms will be sent back to myself.

First part of the process

- After discussion with the faculty you will be assigned a supervisor.
- You will receive an email stating who your supervisor is.
- When you get this email you should contact your supervisor immediately to set up a meeting and if possible start working on the project straight away.
- As your project starts as soon as you get that main

First part of the process

- In that first meeting you will agree the project that you will do.
- Along with milestones that must be met.
- And if work should be added or removed from the initial specification
- As supervisors will have a good idea on the complexity and workload of what you are trying to do.