

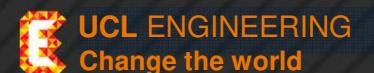


COMP0016: Systems Engineering

Deliverables and Assessment of Coursework 3 and
Final Submission

UCL Department of Computer
Science

Dr. Yun Fu



COMP0016 Components Weighting

11 Components	Category	Examiner	Mark
HCI	Group	Chris	5%
Coursework 1: Revision	Group	Dean / Graham	7.5%
Coursework 2: Devops	Individual	Graham	7.5%
Coursework 4: Elevator Pitch & Legal issues	Group	Graham	7.5%
Coursework 3: Prototype 1	Group/Individual	Yun	7.5%
Website	Group	Yun	15%
Code & Walkthrough with clients	Group	Yun	15%
Poster	Group	Yun	2%
Video	Group	Yun	3%
Individual Report & Contribution	Individual	Yun	25%
Final Presentation on Tuesday 24 April	Group	Graham	5%

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Coursework 3: Prototype 1	Group & Individual	Yun	7.5%
Website	Group	Yun	15%
Code & Walkthrough with clients	Group	Yun	15%
Poster	Group	Yun	2%
Video	Group	Yun	3%
Individual Report & Contribution	Individual	Yun	25%
Final Presentation on Tuesday 24 April	Group	Graham	5%

Project timeline

- Week 1-5 in term 1: Requirement Analysis, HCI, Research
- Week 6-10 in term 1: Prototype, Website Editing
- Week 1-5 in term 2: Implementation
- Week 6-10 in term 2: Testing and debugging, Website Editing, Poster Design, Video Editing

OUTLINE



1. Final Project Deliverables (at the end of the project)
 - Source Code
 - Website
 - Video
 - Poster
 - Individual Report and Contribution
2. Coursework 3: Prototype 1 (in January 2019)

1.Final Project Deliverables



1

Deliverables

- **Project website** to both your client and to Moodle. Examples will be available on Moodle.
- **Source code walkthrough with your client sign off, and source code submission** to both your client and to Moodle. A Skype or face-to-face meeting should be arranged to run the code walkthrough as well as running the actual final version of your application to your client.
- **Two MP4 Videos**
 - Video 1: 5-8 minutes technical video to Moodle and client to introduce your project and show the key features. Examples will be available on Moodle.
 - Video 2: A 1-2 minute key features demonstration video.
- **Poster** to both your client and to Moodle for the student showcase on April 23 2019. Examples will be available on Moodle.
- **Individual reports** to Moodle, on what you contribute, what difficulties you faced and how you overcame them, and evaluation of your team members and yourself. Not more than 4 pages.

Date for submission on Moodle

5 Components	Submission Date	Return Date
Source Code	23:55 23/4/2019	21/5/2019
Project Report	23:55 23/4/2019	21/5/2019
Individual Report	23:55 23/4/2019	21/5/2019
Poster	23:55 23/4/2019	21/5/2019
Video	23:55 23/4/2019	21/5/2019

Marking Procedure

- Your team TA and I will see the live demo of your project on April 23, 2019
- After you submit your work on Moodle on April 23 2019, your team TA and I will run your program, read your project website, poster, and individual report, watch your video to do the first round of marking.
- I will review all the marking done by the TAs to do the second round of marking.
- The provisional marks for code, website, poster, video, and individual report and contribution will be returned on May 21, 2019.

1.1 Source Code



1

Source Code Submission

- One zip file including the entire source code and build files (any open source external libraries) should be submitted on Moodle. If your zip file is over 160M, please upload it to Google Drive, save the link in a text file and submit the text file on Moodle.
- Database (if applicable)
 - Export your database as a file and save it in the source code fold

Project Assessment

- **Your project will be assessed on**
 - Challenge of the required features
 - Completion state of the required features
 - Quality of your solution
 - User Interface & User Experience (if applicable)
 - Bugs
 - Feedback from your client

ID	Requirements	Priority	State
1		Must	✓
2		Must	✓
3		Should	X
4		Could	X
Key Functionalities (must have and should have)		85% completed	
Optional Functionalities (could have)		65% completed	

Mark Range 90-100

- Description
 - Close to Perfect (Exceptional 1st)
- Criteria
 - A significant contribution to the field.
 - Challenging goals and substantial deliverables.
 - An original and/or a model solution to the problem in question.
 - Close to faultless in execution
 - Results released, or ready to be released as a research result or product.
- Comments
 - This represents a really outstanding achievement.
 - The project needs to clearly stand out above others.
 - A mark in this range is hard to achieve, not impossible but certainly rare.
 - There may be one project every few years that achieves this kind of mark.

Mark Range 80-89

- Description
 - Outstanding (Excellent 1st)
- Criteria
 - A useful contribution to the area
 - Challenging goals and all the required features are delivered
 - Only minor faults in execution
 - Results close to being releasable either as a product, high-quality working prototype
- Comments
 - This represents a project that stands out as excellent in most respects but doesn't fully meet the criteria for the top range.
 - We would expect a small number of projects (10-15% maybe) to be in this range each year

Mark Range 70-79

- Description
 - Very Good (1st)
- Criteria
 - A good outcome that has found and built a feasible solution to the problem posed.
 - Challenging goals and nearly all the required features are delivered
 - Some small faults in execution or understanding, but largely correct.
 - Capable of being released as a product with some additional work.
- Comments
 - This represents a straightforward first class project. Most things have been done well, but there will be some faults or criticisms.
 - We would expect a number of projects (20% maybe) to achieve this level.

Mark Range 60-69

- Description
 - Good (2:1)
- Criteria
 - A solid set of results and the main problem largely solved.
 - Challenging goals and all the key features are delivered
 - There will be some ambiguities or faults
 - The results are able to show a feasible prototype but there are typically some limitations or omissions.
- Comments
 - A good result, that is well on the way to delivering a complete working version of the system, but is not fully complete or finished.
 - We would expect the majority of projects to be at this level.

Mark Range 50-59

- Description
 - Satisfactory (2:2)
- Criteria
 - A partial solution that addresses most of the key issues but is not complete
 - All the must-have features are delivered
 - Project execution not particularly ambitious, or not entirely completed
 - The results are good enough, and the basic features working, but a fair amount still to do.
- Comments
 - A satisfactory but limited result. The core features are in place but may be buggy and not that well defined.
 - We would expect a minority number of projects to be in this range (maybe 15%).

Mark Range 40-49

- Description
 - Weak (BSc Pass, MEng Fail)
- Criteria
 - A basic solution that shows some progress but is some way from completion.
 - Some must-have features are implemented.
 - The results show that at least a solution is possible but there are significant omissions and flaws.
- Comments
 - A just about adequate project, in that it has achieved enough to get a BSc pass mark, but well below expectations.
 - We would expect no more than 1-2 projects at most in this range.

Mark Range 30-39

- Description
 - Inadequate (Fail)
- Criteria
 - No working or partially working solution.
 - Concrete achievements very few, project goals not nearly achieved
 - Project has been run badly
- Comments
 - You have failed. Almost certainly due to lack of effort more than anything else.
 - We do not expect to have to fail any projects but will do if the (lack of) results require it.

Mark Range 0-29

- Description
 - Very poor (Bad fail)
- Criteria
 - No solution has been identified and the group is not capable of progressing.
 - All aspects of the project have been handled badly.
 - Actual achievements may be very few.
 - Project is dysfunctional.
- Comments
 - Inexcusable result, that should never happen.
 - We don't want any projects in this range and the monitoring/supervision process should prevent it happening.

1.2 Website



1

Website Structure

- Home
- Requirements
- Research
- HCI
- Design
- Testing
- Evaluation
- Management

Home

- Project title
- An 3-6 sentences abstract about the project. It should include the following contents
 - What the project is about
 - What is your solution
 - What is your achievement
- Key features of your project
- Video to introduce the project and demonstrate the key features of your project
- The development team
 - Photo, name, email of each member
 - Role or main contribution to the project

Requirements

- Introduction to project background and client
- Project goals
- Requirement gathering
- Personas
- Storyboards
- MoSCoW requirement list
 - Functional and non-functional
- User cases
 - User case diagram
 - List of user cases

Research

- Existing solutions review
- Related technologies
 - What are the potential devices? (if applicable) Please compare these possible devices, describe what you choose, and explain why.
 - What are the potential programming languages, libraries, APIs, frameworks? Please compare these possible solutions, describe what you choose, and explain why.
 - What are the potential algorithms? (if applicable) Please compare these possible algorithms, describe what you choose, and explain why.
- Summary of final decision
- References
 - IEEE style

devices and games are still in their early explorative stage [50] violent video games have dominated the top gaming charts [41], which has evidently caused discussions surrounding the impact on the

- IEEE citation reference definition
 - <https://ieee-dataport.org/sites/default/files/analysis/27/IEEE%20Citation%20Guidelines.pdf>

HCI (if applicable)

- Design principles
- Hand-drawn paper sketches (optional)
- Wireframe
- Screenshots of final prototype for key pages



Design

- System architecture diagram and a brief description of each component
- Site Map or Page flow (if applicable)
- Class Diagram (if applicable)
- Sequence Diagram (if applicable)
- Design patterns (at least 5)
- Data storage (if applicable)
 - Please provide the ER diagram if you have a database
- Implementation of Key functionalities

Testing

- Testing Strategy
- Unit and integration testing
- Compatibility testing (if applicable)
- Responsive design testing (if applicable)
- Performance/stress testing (if applicable)
- Security testing (if applicable)
- Automated testing (highly recommended for higher marks)
- User acceptance testing
 - Test cases
 - Feedback from testers and client



Evaluation

- Summary of achievements
 - A achievement table to list the MoSCow features, the completed status, and contributors
 - A list of known bugs
 - Individual contribution table
- Critical evaluation of the project
 - User interface / user experience (if applicable)
 - Functionality
 - Stability
 - Efficiency
 - Compatibility
 - Maintainability
 - Project management
- Future work
 - How could the project be extended if you had another six months

Example of Achievement Table and Known Bug List

- Achievement table

ID	Requirements	Priority	State	Contributors
1		Must	✓	All
2		Must	✓	All
3		Should	X	Michael
4		Could	X	John, William
Key Functionalities (must have and should have)		85% completed		
Optional Functionalities (could have)		65% completed		

- Known bug list

ID	Bug Description	Priority
1		High
2		Medium
3		Low

Individual Contribution Table Example

Work packages	John	Michael	William
Client liaison	33%	33%	34%
Requirement analysis	34%	33%	33%
Research	50%	0	50%
UI Design (if applicable)	20%	10%	70%
Programming	20%	0	80%
Testing	0	0	100%
Bi-weekly Reports	70%	20%	10%
Project Website	60%	33%	33%
Poster Design	0	0	100%
Video Editing	50%	0	50%
Overall contribution	30%	34%	36%
Main Roles (maximum three for each member)	Researcher, Report Editor, Front End Developer	Back End Developer, Report Editor	UI Designer, Front End Developer, Tester

Management

- Legal issues (a core part of the marking)
- User manual
 - Teach users to use your application
 - For the web app, please provide the URL of the live website, the username, and password to login your website if authentication is required.
 - For the mobile app (Android or cross platform app), please provide a link to download the apk file. Please also provide username and password if authentication is required.
 - If there are more than one type of user (e.g. admin and normal user), please provide one account for each type of user.
- Deployment manual
 - This should include the technical details to deploy your project after your clients receive your source code.
- Gantt Chart

Project Website Marking Criteria

- **Home:** Is the abstract and key features explained well
- **Requirements:** Is the project background and client explain well. How well the project requirements are captured and described?
- **Research:** How well you review the existing solutions and compare devices, tools, software, API, libraries, algorithms? Are references in place?
- **HCI:** Is the HCI design documented well?
- **Design:** Has the system design and implementation been explained well?
- **Testing:** Is there a good testing strategy and a thorough testing?
- **Evaluation:** Is there a good evaluation of the end results of the work? Are the criteria relevant, and the conclusions justified?
- **Future Plan:** Is the future plan well documented? Is the plan concrete?
- **Appendix:** Quality of the user and deployment manuals.
- **Format:** Does the website have a good format?
- **Clarity:** Is the content well written and readable? How are the spelling and grammar of the report? Does it communicate effectively?

Mark Range for Project Website

Mark Range	Description	Criteria
90 - 100	Exceptional	Publishable quality. Close to faultless in documentation.
80 - 89	Outstanding	Could lead on to publishable work
70 - 79	Distinction	Very well written with a clear logical structure
60 - 69	Good (merit)	Clear project write-up with logical structure
50 - 59	Satisfactory (pass)	Adequate project write-up, lacking clarity or detail in places, or containing irrelevant material
40 - 49	Weak (BSc Pass, MEng fail)	Write-up is somewhat incoherent, rushed, contains important omissions, or irrelevant material
30-39	Inadequate(Fail)	Documentation is poor, unstructured, some parts missing.
0 - 29	Unacceptable fail	Documentation is substantially absent, badly written, incomprehensible or wrong.

1.3 Video and Poster



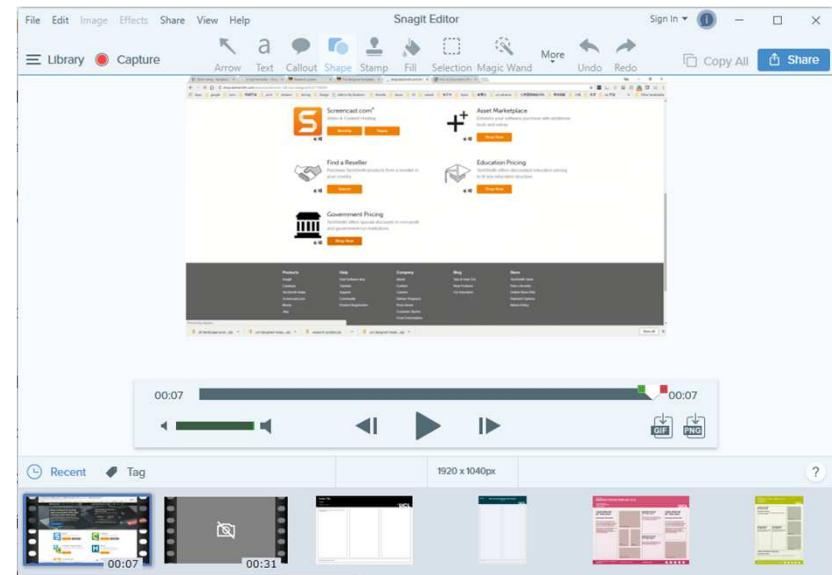
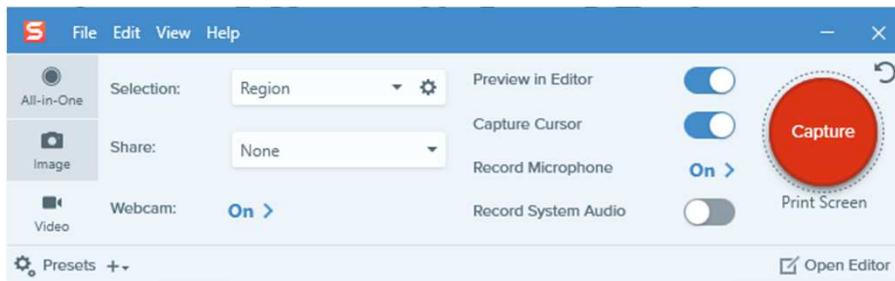
1

Video

- Two videos to produce!! **mp4 is the only valid format, and the resolution should be 1080p**
- The first is a video for both client and for the examiners. It should be at least 5 minutes, no longer than 8 minutes. It should
 - Start with an introduction slide of your project title, team number, team members, and the client.
 - Include the background of the project, the app idea, and the key requirements
 - Use a system architecture figure to introduce your solution
 - Introduce the main technologies you used to implement the project
 - Demonstrate the key features
 - Summarise the achievements
 - Sample videos available on Moodle
- The second is the “features demonstration” of the project. This is only for your client. No longer than 2 minutes.
 - Start with an introduction slide of your project title, team number, team members, and the client.
 - Include the background of the project, the app idea, and the key functionality
 - Demonstrate the key features
- Notes:
 - Please do not include any background music.
 - Please have a narrator to explain things. Please do not submit a silent video.
 - Please make sure the voice of narrator is clear.

Video Editing

- Apple iMovie
- Snagit
 - Free to trial for 15 days
 - Click [this link](#) to download Snagit
 - Features: record voice, switch between webcam and screen recording, video editing
 - Tutorial: [How to Document a Process With Video](#)



Poster

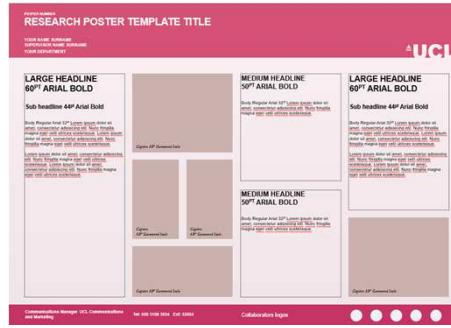
- **pdf is the only valid format**
- The poster should include
 - UCL logo
 - Project title
 - Team number and team members
 - The affiliation of your client
 - Abstract
 - Key requirements
 - Key features
 - Screenshots of the key pages of your app
- Sample posters available on Moodle

Poster

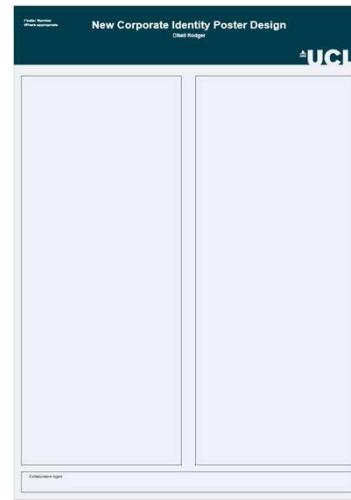
- Editing tools
 - PPT
 - Photoshop
- Poster templates
 - Download link: https://drive.google.com/open?id=1fO8eZR9pgo-9sw_bJ67MIfxQvBkHcZtx



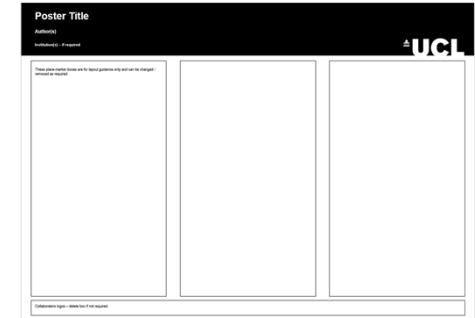
Designed portrait poster



Designed landscape poster



Basic portrait poster



Basic landscape poster

1.4 Individual Report and Contribution



1

Individual Report

- 2-4 pages
- **pdf is the only valid format**
- Please use section numbers such as 1 and 1.1 to organise your report
- It should include
 - The project title, team number, your name, and your student ID
 - List your main personal contributions to the project (e.g. client liaison, research, UI design, front-end development, back-end development, testing, group report, bi-weekly report, poster editing, video editing)
 - The main difficulties you faced and how you overcame them
 - Assessment of each team member (including yourself)
 - List the strengths and weaknesses (e.g. reliability, technical skills, communication skills, document writing etc.) of each member (**including yourself**) and the role that each member is best suited to (client liaison, UI designer, researcher, programmer, report editor, tester)
 - Please evaluate the performance of your team members and yourself via a number between 1 (poor) and 10 (excellent). Please give some evidence to explain why you give the number.
 - If you have different opinion about the contribution distribution in the individual contribution table in the project website, please tell which part you do not agree with and explain why. (**optional**)

Individual Assessment

- **Your individual performance will be assessed on**
 - Contribution percentages in the contribution table of your project website
 - Your individual report
 - Assessment of you in your team members' individual reports
 - TA's feedback

Variations in Marks for Group Components

- By default all team members have the same team marks for the project work.
- **However, this is not fixed and marks can be reduced for individuals.**
 - This occurs if a team member did not participate, or failed to properly contribute such as by leaving tasks undone. This leads to reduced team marks, potentially down to zero if no contribution was made.
- In practice we have found that in the large majority of teams all individuals contribute relatively evenly, so not many variations are needed.

Variations in Final Marks for Team Members

- Members of the same team do not get the same mark due to the 25% individual report & contribution assessment.
- The individual report and contribution mark is based on the average mark of the teamwork (code, report, video, poster) and then is adjusted based on your individual contribution to the project.

1.5 Project demonstration on Tuesday 23 April



1

PowerPoint/Keynote Slides for Project Demo

- Each team should prepare 4 PowerPoint/Keynote slides for live demo.
- Slide 1: The title slide with the project title, team number, team member names, client names, and affiliations.
- Slide 2: The abstract slide.
 - An abstract (1-3 sentences) to explain what your project does/solves.
 - Project type (web app, mobile app, IOT, machine learning application, data visualisation, etc.)
 - Main technologies
- Slide 3: The achievement slide
 - A table which lists all of the major MoSCoW style requirements, the state of each requirements, and the names of contributors. If you have implemented the requirements, please tick '✓'. If not, please tick 'X'. You will be asked to demonstrate the completed features.
 - Two self-assessment numbers: a basic functionality ('Must have' and 'should have') achievement number and an optional functionality ('Could have') achievement number, based on your progress. Each number should be an percentage.
- Slide 4: The contribution distribution slide
 - An individual contribution table which shows the contribution percentages of each team member for the whole project (including client liaison, research, programming, website editing, etc.).
 - The main 2-3 roles of each team member (Client Liaison, UI Design, Researcher, Programmer, Report Editor, and Tester).

PowerPoint/Keynote Slides for Final Project Demo

- Example of achievement table

ID	Requirements	Priority	State	Contributors
1		Must	✓	All
2		Must	✓	All
3		Should	X	Michael
4		Could	X	John, William
Key Functionalities (must have and should have)		85% completed		
Optional Functionalities (could have)		65% completed		

- Example of individual contribution table

Work packages	John	Michael	William
Client liaison	33%	33%	33%
Requirement analysis	33%	33%	33%
Research	50%	0	50%
UI Design	30%	40%	30%
Programming	30%	35	35%
Testing	0	50	50%
Progress Report	60%	20%	20%
Website Editing	33%	33%	33%
Poster Design	0	0	100%
Video Editing	50%	50	0
Overall contribution	30%	35%	35%
Roles	Researcher, Report Editor, Front End Developer	Back End Developer, Report Editor, Tester	UI Designer, Front End Developer, Tester

2. Coursework 3: Prototype 1



2

Coursework 3 Deliverables

- **Submission deadline:** 23:55 11 January
- **Prototype demonstration to TAs and me:** January 14-17 in the lab
- **Return date:** February 8
- **Project website** to Moodle, including Home (excluding video), requirements, research, HCI, Prototype (System architecture, ER diagram if applicable, implementation of finished functionalities).
- **Project source code to Moodle.**
- **Individual report** to Moodle, on what you contribute, what difficulties you faced and how you overcame them, and evaluation of your team members and yourself. Not more than 4 pages for each.
- **Weighting**
 - Project progress and website: 4%
 - Individual report & contribution: 3.5%

Website Structure

- Home
 - Project Title
 - An 3-6 sentences abstract about the project
 - Key features of your project
 - The development team
- Requirements
 - Introduction to project background and client
 - Project goals
 - Requirement gathering, requirements sealing with the client (agreed final requirements)
 - Persona
 - Storyboards
 - MoSCoW requirement list
 - User cases
- Research
 - Review existing solutions
 - Related technologies
 - Summary of final decision
 - References
- HCI
 - Design principles
 - Paper sketches
 - Wireframe
- Prototype
 - System architecture diagram and a brief description of each component
 - ER Diagram to database design if applicable
 - implementation of finished functionalities

Slides for Project Demo on January 14-17 in the lab

- Each team should prepare 4 PowerPoint/Keynote slides for live demo.
- Slide 1: The title slide with the project title, team number, team member names, client names, and affiliations.
- Slide 2: The abstract slide.
 - An abstract (1-3 sentences) to explain what your project does/solves.
 - Project type (web app, mobile app, IOT, machine learning application, data visualisation, etc.)
 - Main technologies
- Slide 3: The achievement slide
 - A table which lists all of the major MoSCoW style requirements, the state of each requirements, and the names of contributors. If you have implemented the requirements, please tick '✓'. If not, please tick 'X'. You will be asked to demonstrate the completed features.
 - Two self-assessment numbers: a basic functionality ('Must have' and 'should have') achievement number and an optional functionality ('Could have') achievement number, based on your progress. Each number should be an percentage.
- Slide 4: The contribution distribution slide
 - An individual contribution table which shows the contribution percentages of each team member for the whole project (including client liaison, research, programming, website editing, etc.).
 - The main 2-3 roles of each team member (Client Liaison, UI Design, Researcher, Programmer, Report Editor, and Tester).

PowerPoint/Keynote Slides for Final Project Demo

- Example of achievement table

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2		Must	✓	All
3		Should	X	Michael
4		Could	X	John, William
Key Functionalities (must have and should have)		85% completed		
Optional Functionalities (could have)		65% completed		

- Example of individual contribution table

Work packages	John	Michael	William
Client liaison	33%	33%	33%
Requirement analysis	33%	33%	33%
Research	50%	0	50%
UI Design	30%	40%	30%
Programming	30%	35	35%
Progress Report	60%	20%	20%
Website Editing	33%	33%	33%
Overall contribution	30%	35%	35%
Roles	Researcher, Report Editor, Front End Developer	Back End Developer, Report Editor, Tester	UI Designer, Front End Developer, Tester

Individual Report

- 2-4 pages
- **pdf is the only valid format**
- Please use section numbers such as 1 and 1.1 to organise your report
- It should include
 - The project title, team number, your name, and your student ID
 - List your main personal contributions to the project (e.g. client liaison, research, UI design, front-end development, back-end development, testing, group report, bi-weekly report, poster editing, video editing)
 - The main difficulties you faced and how you overcame them
 - Assessment of each team member (including yourself)
 - List the strengths and weaknesses (e.g. reliability, technical skills, communication skills, document writing etc.) of each member (**including yourself**) and the role that each member is best suited to (client liaison, UI designer, researcher, programmer, report editor, tester)
 - Please evaluate the performance of your team members and yourself via a number between 1 (poor) and 10 (excellent). Please give some evidence to explain why you give the number.
 - If you have different opinion about the contribution distribution in the individual contribution table in the project website, please tell which part you do not agree with and explain why. (**optional**)



COMP0016: Systems Engineering

Deliverables and Assessment

UCL Department of Computer Science

DR YUN FU