

Agile Team Project 2022-23

Task Specification

February 2023

Team Project teaches Agile Development Practices by doing. This is the most industry-relevant module you will take. Teams will produce a full-stack web-application, using industry-standard development techniques (Kanban, CI/CD, code reviews, etc.). Some tasks are submitted individually and peer-assessed by the team.

The module is 100% continually assessed, so requires consistent effort when compared to exam-based modules. Working in a team is a difficult skill to master, that requires getting out of your comfort zone, relying on team-mates and solving issues together.

Teams are awarded marks for working-fairly and building software as a team. To get above 70%, teams must demonstrate excellent sophistication for example, creativity, aesthetics, technical ability, and/or the ability to work securely with real data and customers.

Assessments

There are six submissions, three individual and three team milestones. Each milestone has a theme:

S1	Submission 1	individual	<ul style="list-style-type: none">• mockup of functionality (not login)• kanban feature cards• persona(s)• git commit and SSH setup	5%	week 3	15/02/2023
M1	Milestone 1 “ideation”	team	<ul style="list-style-type: none">• S1 ranking• Agreed, coherent project concept & personas & mockups• CI pipeline setup• meeting diary• S2 task allocation & planning	25%	week 4	22/02/2023
S2	Submission 2	individual	<ul style="list-style-type: none">• agile estimation of feature cards• 1-page tech research report• development prep: tech stack/CI	5%	week 6	08/03/2023
M2	Milestone 2 “MVP”	team	<ul style="list-style-type: none">• S2 ranking• walking skeleton/MVP• GDPR policy & DPIA form• meeting diary• S3 task allocation	30%	week 7	15/03/2023
S3	Submission 3	individual	<ul style="list-style-type: none">• full-stack feature(s) development	5%	week 10	26/04/2023
M3	Milestone 3 “iterative development”	team	<ul style="list-style-type: none">• S3 ranking• complete app development• team contribution report• app demonstration• accessibility demonstration• meeting diary	30%	week 11	03/05/2023

Team work and contribution

The assumption is every team member must contribute from the start. All team members must participate in the assessment by submitting individual work to Canvas and contribute to team work. The tasks for individual submissions will be allocated to by your team. Teams will review and rank each members' individual work and submit the ranking of work at the milestone. Teams will be provided guidance on how to rank contributions and report non-contributions.

There will be an intervention process for dealing with team working issues. Where individual team members do not submit allocated work, those members may not get credit for the entire milestone. Also where teams allow one member to 'storm' ahead with the project; or where members are 'passengers' and do not contribute equally. We reserve the right to hold vivas to examine any dysfunctional teams or team members. Page limits for individual and team work must be adhered to.

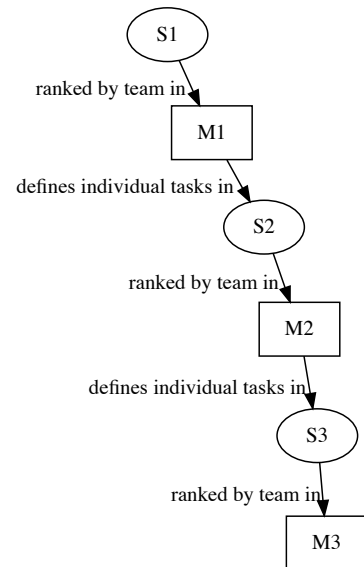


Figure 1: module work flow

Team formation

As in real Agile Teams, you will be able to choose your teams to some extent. You can self-allocate into groups-of-three or groups-of-two, or decide to be randomly allocated. n.b. there are a limited number of self-selection groups available. These are first-come, first-served. From your self-allocations, we will form random, mixed ability teams.

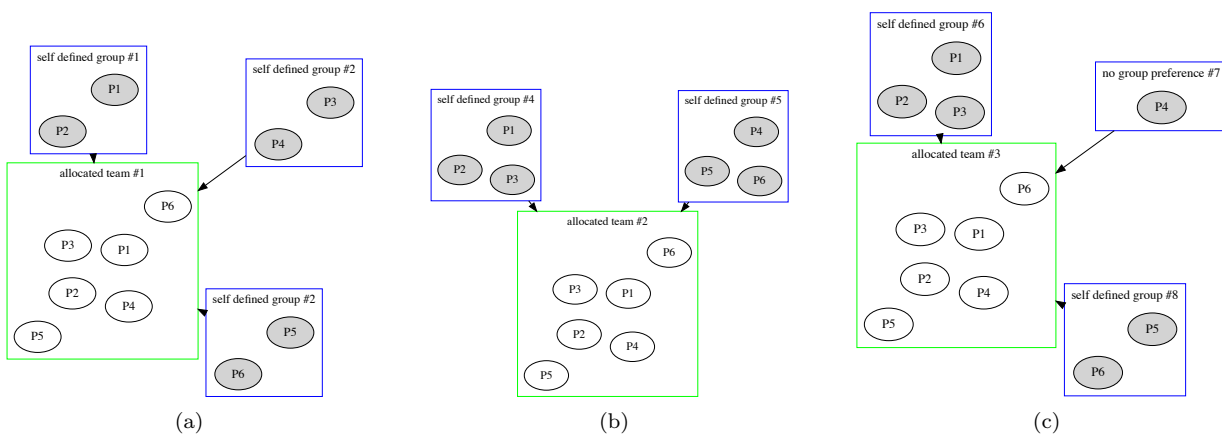


Figure 2: Team formation examples

Teams will be separated by degree: BSc Computer Science, Degree Apprentices and BSc CS+AI. Your team must be on the same campus. Mixed teams will not be allowed. CS+AI teams will be required to include some aspect of AI.

Full stack application

Your team must decide together the application you want to make. We have provided some suggestions about app selection and example applications on canvas.

Your team's application must serve a useful purpose for real-world users ('personas'). One important assessment aspect will be the inclusiveness of your application, that is, how well does it adapt to a range of users with diverse needs: not every user can use a mouse, read the screen or hear sounds.

Your team's application must have some original aspect, so you cannot simply clone a successful or off-the-shelf application. You must also avoid developing solutions for problems that do not exist. We strongly suggest you find some real people who would benefit from an application.

The user interface must be HTML/JS accessed via a standard web browser. The interface has to be flexible enough to be accessible for users with various abilities. If you present information graphically, how can a blind user access it. If you make use of sounds how can that be conveyed to a deaf user?

Required only for CSAI groups, optional for others): Artificial Intelligence Your application must integrate an AI technique for one user-facing feature. The AI could be in any form that is relevant for your application. For example, this could be a suggestion engine, chat-bot, image recognition, virtual assistant, etc. You are encouraged to use an off-the-shelf library or API to provide the AI functionality. The AI could be a major component of your project, if you wish. However, you do not have time to implement very advanced AI from scratch.

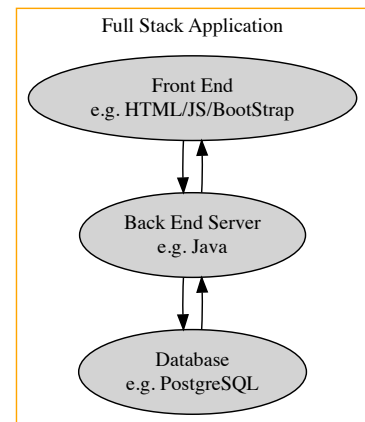


Figure 3: Full-stack app

Sophistication of application

Your team's application must have a minimum level of sophistication described in this section.

Basic level of sophistication:

- Have a web front end accessible from a standard browser
- Store some user-specific state in a database
- Include a relevant GDPR privacy policy for all personal information
- Use the given git repository for version control - team members must submit their own code via their own user account
- Use a CI/CD pipeline - we have provided an example pipeline and skeleton app
- The app should be deployed and accessible publicly - we have provided a VM for this purpose
- Use a domain https:// (encrypted) and disallow http:// (plain text) requests -
- Implement features using "vertical slicing"

The above criteria are the minimum required to go above 70%

Advanced Sophistication for marks above 70%:

- Have real users who provide feedback to help build the app
- Use complex APIs or libraries to implement useful features
- Integrate with existing systems or services
- Demonstrate creativity and flair in the features implemented
- Provide a native mobile application or separate front end
- Look aesthetically pleasing, with a clear visual identity and relevant URL
- Justify and implement a different tech-stack than the provided one

Not all of the above criteria are required to get a mark 70%-100%.

Several resources are provided in the 'Resources' section below. If you are completely stuck, speak to your TA, lecturer or module leader.

Resources

Several resources are provided for this project. Each group will be provided with a shared gitlab repository which has a kanban board, CI pipeline and deploys to an AWS virtual machine. Shell access to the VM will be provided. We will also create DNS entries of the form project-name.bham.team that point to your VM.

- <https://balsamiq.com/wireframes/desktop/> for creating user interface mockups. For this module we provide a student licence so you can use *Wireframes for Desktop* on your university or personal devices. Works on Windows, Mac or Linux (via lutris).
License Key:
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License End Date: Sep 30, 2023
- **LinkedIn Learning: Some interesting courses on:** Django, Flask, Spring Boot, Flutter, React Native, Bootstrap, Angular, Vue.js, CI/CD, Balsamiq etc
<https://intranet.birmingham.ac.uk/as/libraryservices/linkedin-learning/index.aspx>
"We are pleased to offer all students unlimited access to LinkedIn Learning. This premium online resource can help you broaden your knowledge and enhance your academic, technology-related, and creative skills through expert-led course videos. ... You have access to over 13,000 professional courses, all developed by industry experts. With so many easy-to-use courses available this is a great way to enhance your CV and stand out from the crowd when you are looking for work and work experience."
- **JHipster Documentation** <https://www.jhipster.tech/development/>
- **IntelliJ Ultimate - Free Educational Licenses** IntelliJ Ultimate makes running JHipster apps in an IDE really easy <https://www.jetbrains.com/community/education/#students>
- **GitHub for education developer pack** n.b. signup requires manual approval, can take eight days, so apply ASAP if you plan to use these.
<https://education.github.com/pack>
"Learn to ship software like a pro. There's no substitute for hands-on experience. But for most students, real world tools can be cost-prohibitive. That's why we created the GitHub Student Developer Pack with some of our partners and friends."
some highlights include: DigitalOcean credit for cloud server(s), Azure credit, free name.com/namecheap domain name registration, JetBrains IDE licences, GitKraken (git client, Kanban boards), Travis CI, GitPod etc. (As well as many tools that are out of scope for your project!)
- **Recording presentations: Zoom or MS Teams**
Several assessments require you to record a presentation as a group. Used the following for this purpose:
Zoom: <https://www.linkedin.com/learning/learning-zoom/record-and-review-meetings?u=54776729>
(use linkedin learning to access)
Teams: <https://www.linkedin.com/learning/microsoft-teams-essential-training-5/record-a-video-meeting-or-call?u=54776729> (use linkedin learning to access)
- <https://letsencrypt.org/> for free <https://> certificates *"Let's Encrypt is a free, automated, and open certificate authority brought to you by the nonprofit Internet Security Research Group (ISRG)."*
- <https://www.overleaf.com/edu/bham> for an online, collaborative L^AT_EX editor.
"The University of Birmingham is providing Overleaf Professional features for all students, faculty and staff within the College of Engineering and Physical Sciences who would like to use a collaborative, online LaTeX editor for their projects. Overleaf Professional features include real-time track changes, unlimited collaborators, and full document history."
Overleaf can help you collaboratively develop the documentation you are required to submit for this course. Latex is a system perfect for writing a professionally-typeset report, dissertation or thesis. An Overleaf is ideal for keeping your project diary.