Cloud Computing (CS5224) – Group Project
An Awesome SaaS ☺

The idea of this group project is to apply all that you have learnt during this module and develop a useful cloud service of general interest that offers value-added services. Interested groups may choose to use this prototype as a stepping stone and take it forward ☺.

The *main focus* is to

(a) Develop a business case for a cloud service in an area of interest

(b) Design, implement and compare the cost of hosting the service on-premise and on the cloud

Your implementation must include a working prototype and a web-interface from which the cloud service is accessible (a necessity for a SaaS). Key is to go for a service which solves *a problem*. You are **not allowed** to use an existing SaaS off the shelf and just customise it!

Things to Consider

- A good resource for this project is Singapore's **open data portal**, which is accessible via `https://data.gov.sg/`. Search the datasets to identify a good problem. You are of course free to come up with ideas using other sources too.
- Credit will be given to cloud services that solves a problem well, for e.g. ease of use, quality of features, quality of implementation, and good evaluation, among others.
- **Avoid** redoing services that are already available unless you can do it significantly better ☺.

Examples of previous projects from the *2020/21* cohort have been uploaded to Canvas – this was when posters were needed to be submitted but you **do not** have to worry about it. The list of project topics from the *2024/25 Semester 2* and the *2025/26 Semester 1* cohorts have also been uploaded. All of these should give you a broad idea on the different types of projects done before.

Submission

All submissions will be via *Canvas*.

Activity	**Deadline**
Team formation	09/02/26 at 18:00
Preliminary report	09/03/26 at 18:00
Final report	19/04/26 at 23:59
Video presentation	19/04/26 at 23:59

(i) **Team formation** – please agree amongst yourselves and sign into one of the pre-existing groups by the deadline. A **penalty** of **1 mark** will be applied to any students not doing so by the deadline.

(ii) **Preliminary report (10 marks)** – should be a **maximum** of **5 pages** (including cover page, table of contents, references, figures, etc.).

The preliminary report should contain information on the selected theme, business model, cloud service to be developed, preliminary design, and plan for implementation and evaluation. It can be submitted by any one of the team members. It should be named as *Preliminary.pdf*.

(iii) **Final report (20 marks)** – should be a **maximum** of **10 pages** (including cover page, table of contents, references, figures, etc.). It can be submitted by any one of the team members. It should be named as *Final.pdf*.

One *suggested* report structure can be as follows:

(1) *Motivation/Business Case* – problem statement and formulation, purpose and target users of your service, comparison with other services, etc.

(2) *Business Model* – will this be free or revenue generating? If so, how? Compare and justify your SaaS with an on-premise implementation of the same in the final report.

(3) *Architecture & Implementation* – discuss your SaaS in more detail, such as, design, algorithms, implementation, requirements, user journey, etc. In the preliminary report, this can be an initial plan.

(4) *Evaluation* – how do you know your SaaS works well? Discuss how you evaluated your SaaS. In the preliminary report, this can be an evaluation plan.

(5) *Conclusion* & Future work (if any).

(6) *Code Explanation* (**required**) – similar to a README, this contains information on your code base. It should also include a public URL which links to your code base. This URL should be accessible until the time your marks and feedback are released. This section is **not needed** for the preliminary report.

Please make sure to state any assumptions you have made. The use of diagrams and images to enhance the narrative in the report and convey the design, architecture, workflow, etc. is highly encouraged.

(iv) **Video presentation (5 marks)** – should be a **maximum** of **15 minutes**. The video should be your group presenting your project along with a clear demo of how your SaaS works. It is expected that each member of the team presents a small element during the presentation. Please upload your video to an online platform, such as YouTube and submit the URL on Canvas. This can be submitted by any one of the team members. This URL should be accessible until the time your marks and feedback are released.

Note: Do not worry if Canvas automatically adds a version number to any resubmission.

Important Points

Project Marking – by its very nature marking is subjective as we will evaluate your work based on the overall quality of work and effort. Your SaaS will be evaluated on its clarity of thought, its quality and usability, technical achievement, report writing, and presentation. To summarise, the project is not a 'box ticking' exercise where if you just have all the necessary components, you can expect to get good marks.

Teamwork – all team members are expected to participate equally. It is your responsibility to manage the team dynamics. In order to help monitor this, we will be using *peer assessment*. Two stages of peer assessment will be used with one at the preliminary stage and one at the final stage. Each team member will be asked to review the contribution of each of the other team members on a scale from 1 (zero contribution) . . . 10 (fully contributed). These scores will then be averaged and based on the average, the following marking scale will be adopted. If you **do not fill** in the peer assessment, you will get an **automatic 0**.

Peer assessment mark range	**% of assessment mark awarded**
$7 \leq 10$	100%
$5 \leq 6.9$	80%
$4 \leq 4.9$	60%
$3 \leq 3.9$	40%
$1 \leq 2.9$	0

Only the final stage peer assessment mark will be used for this, while the preliminary stage will help align and improve group expectations. As an example, if a student were to get 20 on the final assessment and 7.5 in the peer assessment, their mark would be 20. However, if their peer assessment is 4.5, their mark would be 12 (based on the table above). In order to do the peer assessment, we will likely use MS forms – more details will follow during the course of the semester.

Plagiarism – standard NUS policies on plagiarism applies, including for the use of AI. This is also detailed in the slides for the introductory lecture of this module. For example, you can use AI generated code/content, but you have to **ensure** that you have **explicitly declared** its use. For example, where and how it was used and what is your learning from it.