

Industry Sandbox Group Project

Optimizing the UNSW Student Accommodation Application Process: Enhancing User Experience through Data Visualization

Your group project involves real-world challenges proposed by UNSW Student Accommodation office. Throughout this term, you will be working with your teaching team, industry mentors, and peers to co-develop solutions that could make an impact in the real world.

Summary

- This assignment is to be undertaken as a group assignment
- Team size: 4-5 students (depending on the tutorial class size)
- Team formation method: Self-selection (students in the same tutorial)
- This assignment is graded upon 30 marks (i.e., 30% of the course total marks)

Important Dates

- Team formation: by Week 4 Friday, 14th March 5.00pm
- Industry mentor sessions: TBA
- Visual report submission (20%): Week 10 Monday, 21st April 4.00pm
- Oral presentation (10%): Week 10 Tutorials

*All dates are set in Australian Eastern Standard/Daylight Time (AEST/AEDT). If you are located in a different time-zone, you can use a [time and date converter](#).

Expected Learning

- Examine datasets using visual analytic techniques and communicate findings using dashboards and data driven visual reports.
- Effectively utilise visualisations to communicate with analytics team members and influence stakeholders.

- Develop problem-solving skills and learner agency that will serve you in the long-term.
- Work effectively in a collaborative environment.
- Enrich your professional profile with industry-relevant experience.
- **Optional:** Leverage additional external datasets / research to strengthen and develop insights.

Part 1: Project Background

The current UNSW Student Accommodation Application Process poses several challenges for both new applicants and returners, as well as for the staff overseeing room allocations. There is no unified system that seamlessly integrates real-time capacity tracking, application fee management, priority allocations (e.g., for disabled or scholarship applicants), and waitlist communications. These fragmented processes make it difficult to provide efficient service, ensure equitable access to rooms, and keep applicants informed of their status in a timely manner.

Without a comprehensive platform, important details—such as application status changes, cancellations, or updated room availability—may not be relayed efficiently, leading to confusion and frustration. Staff often spend additional time verifying data across multiple systems, and applicants lack transparency about fees, deadlines, or waitlist positions. Consequently, the entire experience can feel disjointed, leaving students uncertain about their chances of securing a room and how best to plan for their accommodation needs.

To address these issues, a centralized, data-driven approach is needed. Such a solution would bring together all critical information about fees, open/closed residences, and priority group placements, while also streamlining communication. By integrating these components into a single system, the Accommodation Office can make better-informed decisions and enhance the overall user experience for both students and staff.

1.1 Why Is It Important to Solve This Challenge?

A well-structured, transparent accommodation application process is pivotal to ensuring that UNSW upholds its commitment to inclusivity, fairness, and a supportive campus environment. First, it directly affects student satisfaction—for many, securing campus housing is a critical factor in deciding whether to attend or continue studying at UNSW. An efficient, user-friendly system fosters trust and eases financial and logistical concerns. Conversely, a disorganized or unclear process can cause undue stress, deterring potential applicants and affecting retention rates of current students.

Second, solving this challenge is vital for operational efficiency. Ineffective tracking of room availability and waitlists can lead to prolonged email threads, phone calls, and manual record-keeping, overburdening staff and slowing the allocation process. By optimizing these workflows, the Accommodation Office can reduce administrative workload, allowing staff to focus on higher-value tasks like personalized support for students with unique needs.

Third, the equity aspect of accommodation allocation cannot be overstated. Without a robust system, priority groups—such as disabled applicants, scholarship holders, or Indigenous students—risk facing inconsistencies and delays in receiving the benefits they are entitled to. Clear algorithms and data-sharing protocols ensure these individuals are fairly prioritized, maintaining UNSW's commitment to diversity and inclusivity.

Fourth, the financial clarity offered by a centralized approach to fees is crucial. Many applicants find the fee structure—particularly the non-refundable application fee and advance deposits—which could cause confusion. Streamlining this information and automating payment processes can minimize errors, reduce disputes, and provide applicants with timely updates, thus improving their overall experience.

Finally, by tackling this challenge, UNSW positions itself at the forefront of innovative campus services. Implementing a state-of-the-art application and allocation system highlights the university's dedication to modernizing student services. In an increasingly competitive higher education landscape, demonstrating efficient and equitable accommodation processes can be a key differentiator for attracting and retaining high-caliber students.

1.2 What Skill Sets Are Required to Solve This Challenge?

This project requires a blend of business analysis and data visualization skills, particularly with Power BI. On the business analysis side, students will need the ability to map out existing accommodation processes, identify bottlenecks, and gather requirements from stakeholders such as Deans, scholarship offices, and student support services. Skills in stakeholder engagement and requirements documentation will be crucial for determining what data to collect, how best to structure it, and which metrics are most meaningful (e.g., occupancy rates, waitlist times, fee statuses).

On the technical side, proficiency with Power BI is key. Students should be comfortable creating data models, cleaning and transforming various data sources (e.g., application records, fee transactions, waitlist logs), and building

interactive dashboards that present real-time capacity data, waitlist information, and fee management insights. An eye for data visualization principles and intuitive user interface design will ensure the dashboards effectively communicate complex information to end-users at a glance.

Finally, collaboration and communication skills will help students liaise with the Accommodation Office and other stakeholders. By combining business analysis techniques with Power BI proficiency, the project team can develop a centralized, data-driven solution that enhances transparency, efficiency, and fairness in the UNSW accommodation application process.

Part 2: Project Deliverables

2.1 Project expectation

Your group assessment is designed as a ‘Sandbox Industry Project,’ meaning it involves a real-world problem proposed by data analytics specialists to help you develop relevant and practical knowledge and skills. Unlike textbook case studies, these real project specifications will not include step-by-step guidance or a solution template. To succeed, you will need to apply your learning skills, critical thinking, problem-solving abilities, creativity, and proactiveness.

To excel in this project, you must carefully manage your learning process—demonstrating agency in self-directed learning, conducting research, taking initiative, and more. These tasks are expected to require an average of 12–15 hours per week.

2.2 Project deliverables

There are two deliverables required in this assignment (30%):

- A comprehensive visual report to summarize the key insights in the datasets (20%).
- A oral presentation to communicate key findings to the UNSW Student Accommodation team (10%).

2.2.1 Produce a visual report that encapsulate key visualisations and interactive dashboards

A highly effective approach to the UNSW Student Accommodation Application Process Review would involve creating a centralized digital platform that consolidates every phase of the application journey—from initial submission to final room allocation—for both new and returning students. Below are the key elements that such a platform should include:

- **Data-Driven Insights & Reporting** - Provide analytics dashboards for the Accommodation Office to track metrics such as processing times, usage patterns, and applicant feedback.
- **Enable segmentation of data** by applicant type, priority status, or other relevant criteria, supporting ongoing improvements in equitable allocations. UNSW can reduce redundancies, cut back on manual processes, and give every applicant the clarity and guidance they need.

In addition to the must-have features described above, the accommodation team also seeking further enhancements that build on the foundation of a streamlined accommodation application process:

- **Application Portal & Business Process Review**

Comprehensive Audit: Examine the existing portal's end-to-end workflow to pinpoint unnecessary steps, redundant tasks, and areas that could be made more efficient.

Stakeholder Engagement: Incorporate feedback from students, Deans, and support staff to ensure the revised portal addresses real-world needs and aligns with UNSW's broader institutional goals.

- **Real-Time Capacity Monitoring**

Potential of implement automated tracking that visibly flags buildings as open, closed, or waitlisted in real time.

Proactive Planning - Provide staff and applicants with immediate data on room availability, reducing uncertainty and aiding more efficient decision-making.

- **Ideas for waitlist management & communication** which may include: Build a waitlist system that sends timely alerts (e.g., email) whenever a spot opens up, so applicants remain informed.

Allow applicants to view their waitlist position and receive status updates in real time, minimizing confusion and administrative backlog.

By focusing on these additional elements, UNSW can ensure the overall accommodation application process remains efficient, equitable, and user-friendly for all parties involved.

Keep in mind that the successful dashboards will be used by the UNSW Accommodation team, so they need to be simple to manage and easily updateable.

- Submission: Week10 Monday, 21st April 4.00pm
- Only ONE submission is required per team.
- Marking criteria: see assessment criteria in Appendix.

2.2.2 Deliver an oral presentation to communicate key findings

The oral presentation is your opportunity to communicate key findings/insights to the UNSW Accommodation team to address their concerns. You are expected to leverage on different communication techniques such as storytelling to create an effective and engaging presentation. Specifically, your team will need to:

- Prepare a slide deck for the presentation (12 slides max, everything is included in this page limit)
- Deliver an oral presentation in Week 10 tutorial (12 minutes max)

Any content beyond 12 slides (for the pitch deck) or exceeding 12 minutes will NOT be assessed. A detailed marking rubric can be found in the Appendix

- Slide deck submission: Week 10 Friday, 25th April 4.00pm
- Only ONE submission is required per team.

2.3 Submission and Presentation

During Week 10 tutorials, each group will present their work to the class. All group members must participate and present. Slides are expected to be of a high quality and your presentation format should be concise and suitable for senior management. Your presentation will be shared with your industry mentors from the UNSW Accommodation team. The top performing teams will be invited to present their work to the UNSW Accommodation Office team for consideration of potential vocational internship.

2.3.1 Submission Format

- The visual report should be saved in the format of **Microsoft Power BI Desktop Document (.pbix)** and submitted through Team Assignment Submission Link under the *Assessments* tab on Moodle page.

- The **slide-deck with speaker notes** that summarizes the key points should be submitted as a single file through Team Assignment Submission Link under the *Assessments* tab on Moodle page.
- All teams need to submit the files based on the following naming convention: GROUP_ASSIGNMENT_COURSE_CLASS_GROUP NAME
i.e. GROUP_ASSIGNMENT_INFS5700_W11A_G1.

2.3.2 Late Submission Penalties

Late submissions are subject to a penalty of 10% of the available marks per day, including weekends and public holidays.

Part 3 Opportunities to Engage with Industry Partners

Project Introduction (Week 4): Your industry mentors from the UNSW Accommodation team will join us to share their experiences and perspectives of the challenges in the assignment and answer your questions. Details will be provided on Moodle closer to the date.

Check-point Webinar (TBC): the UNSW Accommodation Office team will facilitate a checkpoint session to provide feedback on the development of your team project. Details will be provided on Moodle closer to the date.

Part 4 Dealing with Group Issues and Conflict Resolution

Conflict is almost inevitable when you work with others. People have different viewpoints and, under the right set of circumstances, those differences may escalate to conflict. It is common that most groups experience issues at some time. What matters is how you handle that issue or conflict. This will determine whether it works to the team's advantage or contributes to its demise.

Conflict is not necessarily a bad thing, though. Healthy and constructive conflict is a component of high-functioning teams. Conflict arises from differences between people; the same differences that often make diverse teams more effective than those made up of people with similar experience. When people with varying viewpoints, experiences, skills, and opinions are tasked with a project or challenge, the combined effort can far surpass what any group of similar individuals could achieve. Team members must be open to these differences and not let them rise into full-blown disputes.

Understanding and appreciating the various viewpoints involved in a conflict are key factors in its resolution. These are key skills for all team members to develop. The important thing is to maintain a healthy balance of constructive difference of opinion and avoid negative conflicts that is destructive and disruptive. One of the objectives of this project is to help you build

communication and conflict resolution skills. The following resources are included to support you:

[Guide to Group Work](#)

[Identifying Group Issues](#)

[Dealing with Group Work Issues](#)

Peer Evaluation

A peer evaluation will be conducted at the end of the term to account for equal contribution. Significant unequal contributions should be discussed in due time within the group. In the case that a dispute emerges, the group needs to discuss with the LiC as early as possible. The purpose of the within-group peer evaluation is to critically reflect on the group work, to prevent “free-riding” and to redistribute marks between group members in cases where free-riding or unequal contributions occur. Claims of unequal contributions, especially if contradicting the evaluation of others, will need to be substantiated with evidence (e.g., group diary, personal diary, meeting notes, emails, Facebook messages). The LiC will make a final judgement in the case that a dispute emerges, calling in the group, considering earlier discussions and submitted evidence. Overall, active and genuine collaboration from each team member will lead to a well-performed team project

Appendix

Table 1. Marking Criteria for the Visual Report (20%)

Criteria	%	Below Expectations (FL)	Meets Expectations (PS – CR)	Outstanding Performance (DN – HD)
Business Knowledge <ul style="list-style-type: none"> • Demonstrate a strong understanding of the business issue being analysed. • Provide contextual knowledge that are relevant for understanding the practicality and impact of the proposed recommendations. 	8%	<ul style="list-style-type: none"> • Does not demonstrate appropriate application of knowledge in relevant topic areas. • Key objectives of the assessment not addressed. 	<ul style="list-style-type: none"> • Demonstrate a capacity to explain and apply relevant concepts. • Provides some analysis and recommendations but not sufficiently substantiated by evidence from course materials and independent research. 	<ul style="list-style-type: none"> • Makes a clearly informed and effective selection and application of knowledge that is highly appropriate for the project context. • Uses relevant examples and/or evidence to support recommendations. • Demonstrating extensive research and ability to consolidate information from various sources.
Visual Design <ul style="list-style-type: none"> • Information is presented in a manner that is visually appealing and easily understood. • The visual reports provide targeted audience with valuable, relevant and comprehensive insight to the business issue they are interested in. 	12%	<ul style="list-style-type: none"> • The selection of visuals are inappropriate and/or incorrect in presenting the data, very limited variety of visuals are used to display data. • The visual designs are poor. They are visually unattractive and are communicating meaningless and misleading information to targeted audience. 	<ul style="list-style-type: none"> • The selection of visuals are generally appropriate, though some data can be better presented by alternative visuals. • A limited variety of visuals have been used to displays data, though some advanced visuals can be used for effective presentation. • The visual design is reasonably appealing and effective in presenting and communicating relevant insights. 	<ul style="list-style-type: none"> • Data are effectively presented by using most appropriate and correct visuals. • The visual report involves a variety of variables/measures and they are skilfully developed with a variety of visuals and interactive features. • The visual report comprehensively and elegantly address the problem, clearly connecting objectives and stakeholders that would use the visualizations.

Table 2. Marking Criteria for the oral presentation (10%)

Criteria	%	Below Expectations (FL)	Meets Expectations (PS – CR)	Outstanding Performance (DN – HD)
Business Knowledge <ul style="list-style-type: none"> Accurate analyse the project requirements. Present recent and relevant knowledge to support arguments and discuss them with accuracy and depth. 	3%	<ul style="list-style-type: none"> Does not demonstrate appropriate application of knowledge to rigorously analyse the project requirements. Does not identify concepts that are relevant to the project. 	<ul style="list-style-type: none"> Applies relevant knowledge and sufficiently engages with the project requirements. Demonstrates a capacity to explain relevant concepts in sufficient depth. 	<ul style="list-style-type: none"> Makes clearly informed and effective selection and application of knowledge that are highly appropriate for the project context. Systematically and critically discriminates between assertion of personal opinion and information substantiated by robust evidence from course materials and independent research.
Problem Solving <ul style="list-style-type: none"> Apply appropriate and rigorous analysis to understand the problem domain as presented in the project. Demonstrate capacity for independent critical enquiry. Propose evidence-based solutions that are relevant and practical, and clearly addressing the challenge proposed in the project. 	3%	<ul style="list-style-type: none"> Does not clearly or correctly identify the project requirements Does not provide relevant and useful insights justified by analysis, theory and/or research. Does not sufficiently consider or evaluate differing perspectives or acknowledge limitations and constraints of own recommendations. 	<ul style="list-style-type: none"> Identifies key elements of project requirements, but does not cover all relevant aspects or convey its complexity Formulates plausible and appropriate recommendations although it may contain some weaknesses or over-simplification, and/or limited justification. Does not sufficiently consider or evaluate differing perspectives or acknowledge limitations and constraints of own recommendations. 	<ul style="list-style-type: none"> Clearly discusses and addresses the project requirements through the application of rigorous analysis and critical thinking. Clearly analyses the solution domain and assumptions are clearly articulated. Demonstrates innovative thinking; project outputs show plenty of in-depth analyses that support the recommendation development process. Presents highly relevant and practical recommendations; provides strong justifications to demonstrate its feasibility and impact. Considers and evaluates differing perspectives and alternative strategies (if appropriate) and acknowledges limitations and constraints of own recommendations.

Business Communication <ul style="list-style-type: none"> • Present relevant contents that can effectively address the specific target audience. • Present contents in a clear logical flow, effectively delivering important information. • Effective consolidation of information from multiple sources. • Engaging and professional. 	4%	<ul style="list-style-type: none"> • Does not engage the target audience. • Does not present arguments in a logical manner; communication is unclear for the audience. • Delivery is not sufficiently professional (e.g., audio too weak, lack of visual aid, etc.). 	<ul style="list-style-type: none"> • Engages with the target audience but lacks logical sequence. • Reasoning and evidence are presented but not well organised. • Delivery is sufficiently clear but time management (e.g., content felt rushed) and engagement need improvement. 	<ul style="list-style-type: none"> • High quality presentation with clear logical flow and engaging content. • Topics discussed are relevant for the target audience; effectively highlights the key findings/ideas of the work. • Presents well-evidenced arguments with accurate and relevant examples; overall delivery is effective and tailored for the target audience.
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