

University IT

**Interactive Career Guidance Platform**

Glossary

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|  |  |
| Student | Student currently enrolled at UWA |
| Occupation - Career areas | Finance, ICT etc |
| Occupation groups | Networking and systems, Database, Software, Security |
| Occupations | Software developer, web developer |
| Specialist occupations | Android developer, IOS developer |
| Job titles | Defined by the employer Traffic controller, Air traffic controller |
| Transferrable skills | baseline skills, are prevalent across many different occupations and industries, and include both soft and learned skills. Some examples include communication, problem-solving, and creativity. |
| Specialised skills | technical skills or hard skills, equip workers to perform a specific task. These skills are usually specific to a given occupation. |
| Certifications | Certifications are recognisable qualification standards assigned by industry or educational bodies |
| Skill categories | Categories roughly adhere to career areas (e.g. Information Technology, Finance, and Health care). |
| Skill Subcategories | Subcategories are groups of skills specific to performing a particular aspect of a job (e.g. . Subcategories are developed using a combination of statistical clustering methodologies and curatorial review by domain experts. |
| Skills | Skills are the basic unit of classification in our taxonomy. |
| Necessary skills | Necessary skills are required for a specific job and are also relevant across other similar jobs. An employee needs these skills as building blocks to perform the more complex Defining Skills. Examples of necessary skills include: business development for Marketing Managers, data entry for Administrative Assistants, and machine operation for Machinists. |
| Defining skills | Defining skills represent the day-to-day tasks and responsibilities of the job. An employee needs these skills to qualify for and perform successfully in a certain role. Examples of defining skills include accounting for Bookkeepers, the ICD-10 coding system for Medical Coders, and entry-level programming languages such as Javascript and HTML5 for Web Developers. |
| Distinquishing skills | Distinguishing skills are sets of skills that allow jobseekerst to highlight their technical proficiency in a given role and to differentiate themselves from other candidates. These are skills that are less commonly required than defining skills and often represent the specific tools or digital skills in which jobseekers can specialise. Examples of distinguishing skills include specific types of marketing platforms such as Marketo and Google Adwords for Marketing Specialists, and creative design and video editing for Graphic Designers. |
| Career pathway | identifying opportunities for career advancement based on overlapping skills, education, experience, and training requirements, and advertised salary. |
| Similar movement | progression from one job to another that pays a comparable salary and is within the same occupation group as the source occupation. |
| Lateral transition | movement from one job to another that pays a comparable salary but requires transition to a new occupation group, different from the source occupation. |
| Advanced movement | movement from one job to another that pays more and is within the same occupation group as the source occupation. |
| Lateral adavancement | movement from one job to another that pays more but requires transition to a new occupational group. |

# Interactive Career Guidance Platform

## Overview

The AI career guidance platform is an innovative solution for students seeking to improve their employability outcomes.

This AI-based tool allows students to explore and identify appropriate career pathways relevant to their degree. The tool helps students discover career pathways, occupations, industries, and in-demand skills.

The tool enables students to load their existing skills and complete a gap analysis against their career path/occupation to understand the skills required for their desired occupation(s).

The platform offers a personalised student pathway to:

* Develop relevant skills
* Engage with industry experience programs
* Mentoring
* Networking opportunities
* Improved job search, CV and Interview skills
* Relevant employment opportunities

## User Interface

The UI is an intuitive, user-friendly interface that will work with the UWA Sitecore Digital Experience Platform.

## AI interface

This system is responsible for understanding and responding to students' queries by analysing their preferences, skills and aspirations. It matches these with relevant job profiles, industries and career pathways.

## Phase 1

Phase 1 of the project includes:

* A tool for students to explore and identify appropriate career pathways relevant to their degree, including career pathways, occupations, industries, and in-demand skills. The tool will be developed using a discreet employability dataset to enable the student to explore and identify appropriate career pathways.
* The development of a student employability profile that captures the student's preference for a career path, industry, occupation and skill development
* Ability to manage student-achieved skills (against the skills taxonomy)
  + Load CV (read and match to skills taxonomy)
  + Student to manually enter/enter skills obtained
* Ability to complete a gap analysis between skills obtained and career pathway/occupation required skills
* Link skills to online learning opportunities

Diagram: Student Employability Insights

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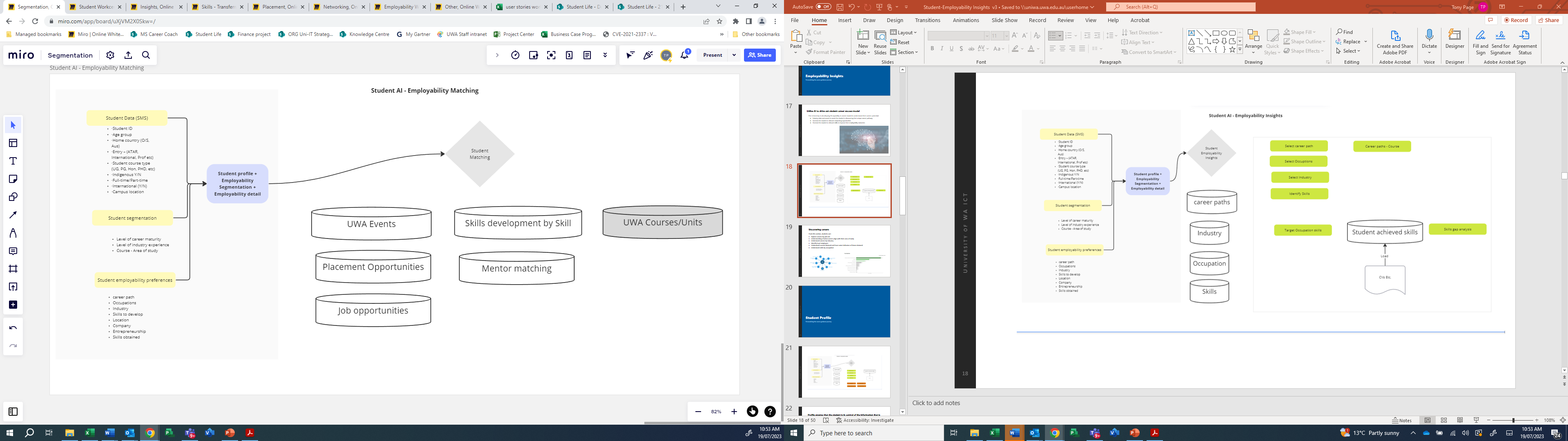
## Future work

### Matching student to opportunities

The platform offers a personalised student pathway to:

* Develop relevant skills
* Engage with industry experience programs
* Mentoring
* Networking opportunities
* Improved job search, CV and Interview skills
* Relevant employment opportunities

Diagram: Student Employment matching



### Skills matching in course planner

A real-time study plan, a digital tool that will utilise an intelligent algorithm to suggest course recommendations based on students' course history, their evolving career aspirations, and the competencies required in the job market.

As the students' career choices adapt and change over time, the system will update to reflect these changes and provide ongoing, personalised guidance.

This endeavour will involve the development of an AI solution that can analyse academic data (e.g., course material, learning objectives), understand student preferences and job market trends, and generate dynamic study plans accordingly.

It will empower students with the ability to make informed decisions about their study plans, enhancing their preparedness for their desired careers

# Student profile

The students' profile compiles student employability data from various sources:

* Initially, data from the Student Management System
  + Student ID
  + ·Age group
  + ·Home country (O/S, Aus)
  + ·Entry – (ATAR, International, Prof etc)
  + ·Student course type (UG, PG, Hon, PHD, etc)
  + ·Indigenous Y/N
  + ·Full-time/Part-time
  + ·International (Y/N)
  + ·Campus location
* Segmention data
  + Level of career maturity
  + Level of industry experience
  + Course - Area of study
* Student employability preference data
  + career path
  + Occupations
  + Industry
  + Skills to develop
  + Location
  + Company
  + Entrepreneurship
  + Skills obtained

The student profile will also store skills the student has obtained

* There is a Master list of skills that will be extracted from the 'job data."
* The skill will also show where/how the skill was obtained
  + Academic
  + Industry Certification
  + Micro credential
  + Third-party provider
  + Industry experience
  + Other
* The skill will also have a grade of (introduction, intermediate, advanced)

Student ability to maintain their skills profile:

* As a student, I want to see a record of the skills I have obtained   and how that skill was obtained
* As a student, I want to add/delete skills I have obtained that have not been automatically loaded
* As a student, I want to view a print-out of my obtained skills

Loading of information against a student profile

* From scarping a CV
* Optional possible from scraping a LinkedIn profile

Future work - Automatically updating my profile with a skill when the skill is completed

Ability to view a job role skills list against the students' obtained skills list

# Insights

Insights use job data to provide career information to the student so that the student can understand possible careers, skills and employers:

General

* As a student, I want the system to remember the searches I have done so that it is easier for me to reconnect with my search results.
* Easy-to-use interface
* As a student, I want the system to suggest what careers are available to me based on:
  + My course of study (information from SMS)
  + A preselected career/industry preference include in the student's profile
* As a student, I want to see an informatic about possible careers
  + Engineer branches off to various types of engineers

Use cases

* As a student, I want to search for possible careers
  + Search based on occupations – based on intelligent search, ie business analyst (enabled text suggestion based on the occupation data set)
* As a student, I want to view occupations associated with my course
* As a student, I want to see what Industries employ the occupation I am interested in
  + By selecting a role (business analyst)
  + Show me industries
  + Number of roles
* As a student, I want to see what employers by State by occupation I am interested in
  + By selecting a role (business analyst)
  + Filter by State
  + Show employers
  + Number of roles
* As a student, I want to see what skills are required by the industry for the occupation I am interested in
  + Selecting the occupation shows me skills in demand (highest demand at the top)
  + The ability to view by industry would be good.
* As a student, I want to see the number of job postings for the roles I am interested in/ over 12 months/
  + projected growth would be good, that is, this # increasing/decreasing by % over years

Optional employability insights

* As a student, I want to view current job advertisements for occupations that I am interested in

# Employability services catalogue

The University maintains a list of online training by skill.

* As a student, I want the system to link me to an appropriate online course to develop an identified skill.

URLs to appropriate online learning will be provided to associated online learning resources.

* LinkedIn
* Coursera
* Microsoft Learning

# Scope

Project setup

* Conduct meetings with selected subject matter experts (SME) to understand data structure and to discuss and finalise the nuances of the project.
* Obtain access to the dataset and work on finalising the specific nuances of the Key Performance Indicator (KPI) metrics to be achieved for testing the AI models.
* Establish the development environment and complete the necessary setup procedures.
* Define and finalise the Solution Architecture to be implemented in the MVP Phase.
* Successful access to the customer data sets and the cloud environment.
* Ensure that the dataset contains sufficient variations to develop robust AI models.
* Integrate the newly developed AI models into the existing infrastructure, ensuring their smooth operation and compatibility with the overall system

Exploration

* Analyse the data variations and discuss with Subject Matter Experts (SMEs). Understand the data and determine the specific subset that will be used for developing the models.
* Based on the discussions and analysis, select a subset of data that will be the foundation for developing the models during the MVP stage. Selected data subset will be processed and ingested into the Cloud environment for further development.
* A detailed report will be prepared and presented to the UWA team, highlighting the Exploratory Data Analysis (EDA) findings. This report will provide insights into the characteristics and patterns observed in the data subset, guiding the subsequent stages of the project.
* Resources required for the project will be set up in the Cloud Environment. This includes configuring the necessary infrastructure and tools to support the development and deployment of the models.

Model development

* Will create an extraction and matching method specifically designed to process the job market data and student profile. This model will play a crucial role in identifying and extracting the metadata that is essential for the later stages of development.
* Selected cases in the data will be processed. This process will investigate a student profile with a set of jobs and produce a report on the closeness of each job and identify the gaps.

UI Building, Model Development and Deployment

* Development of UI: We will develop a userfriendly and intuitive User Interface (UI) that enables seamless interaction with the student wizard agent.
* The developed models will be deployed in a testing environment to assess their performance and functionality.
* End-to-End Testing: We will conduct thorough end-to-end testing to validate the seamless • The key deliverable of this phase will be a User Interface (UI) that allows users to interact with the student wizard agent for limited testing purposes. Users can engage with the agent to inquire about and explore different jobs.
* Interoperability and integration of the deployed models

Solution to production

* Retrospective of Phase 1

The model refinements for Stage

* GPT-powered student wizard agent will be modified based on restricted deployment feedback.
* Improving UI based on the feedback and incorporating more UX-related features.
* A pipeline will be implemented to monitor and test the performance and reliability of the deployed models.
* MLOps (machine Learning Operations) pipeline will be established to streamline the deployment, monitoring, and management of the machine learning models.
* The existing models will gradually improve via the model refinements and user experience by incorporating more features.
* An established MLOps pipeline and monitoring and testing mediums will be implemented.

Training and Handover

* To ensure a smooth transition, comprehensive training and handover
* sessions will be conducted with relevant stakeholders.
* Additionally, a roadmap for maintenance and support will be presented to UWA. This roadmap will outline the future plans for sustaining and enhancing the solution, including regular maintenance activities, updates, and any potential upgrades.
* Successful conclusion of training sessions
* A roadmap for the future outlining the plans for maintenance and support

# (Future) Employability Events

The University has regular industry employability events:

* As a student, I want to be alerted if there is an upcoming employability event that relates to an industry I am interested in or an event that relates to an occupation I am interested in

Employability events are listed on Unihub, and an API for events is available

Optional

* Develop links from University events by an industry that would alert the student that there is an event/by Industry/by a course that can be surfaced to the student as a suggested event.

# Other

Feedback

A function responsible for collecting and analysing feedback from students and stakeholders which can improve and expand the capability of the platform

# Data sets

## Student

* Student ID
* Age group
* Home country (O/S, Aus)
* Entry – (ATAR, International, Prof etc)
* Student course type (UG, PG, Hon, PHD, etc)
* Indigenous Y/N
* Full-time/Part-time
* International (Y/N)
* Campus location

## UWA Courses/Units

* UWA courses
* UWA Units
* Courses link to occupations

(In the future, Units will have skills associated with them)

## Occupations

* Classification by Industry
* Companies
* Industry
* Job title
* Salary
* Education level required
* Australian location
* Skills

## Job titles

* Standard job titles

## Skills

Taxonomy including

* Transferrable skills
* Specialised and technical skills
* Qualifications and Certifications

## Location

* Australian States
* Postcodes

## UWA Courses

* UWA courses
* Links to occupations

# Attached

1. NOVA Job Feeds
2. Sample data pack
3. Link to API information:

For API's, currently ANZ data is hosted on our 'Insight' API. Documentation for this can be found here:

Sandbox and documentation

* URL : <http://sandbox.developers.burning-glass.com/insight>
* Username : burningglass
* Password : Ins1ght