

## Skilled - Assessment 1 of COM519 - Advanced Database Systems



Skilled is a simple webapp designed as a tool to track the level of expertise team members have against a set of role requirements. The goal is to create a visualisation of where team members are that can be used to justify where effort should be invested to improve their capabilities.

Skilled allows registered users to:

- define groups of relevant skills that a team should have
- define roles with different skill levels
- add / remove team members
- create / view assessments of team members against the defined roles

Skilled was developed as a work based project for the COM519 - Advanced Database Systems module taught by [Solent University \(https://www.solent.ac.uk/\)](https://www.solent.ac.uk/)

### Software Dependencies

The following must be installed or accessible:

- node [Node JS website \(https://nodejs.org/en/\)](https://nodejs.org/en/)
- mongodb [MongoDB website \(https://www.mongodb.com/\)](https://www.mongodb.com/)  
if not installed locally must be accessible as a network / hosted resource

### Installation

Checkout the code from github using:

```
git clone https://github.com/Grahame-student/COM519_AE1_Skilled.git
```

*The location the code is checked out into should not have any spaces in its path, some npm packages have problems installing to them*

Install the required node packages using:

```
npm install
```

Create a .env file using the provided .env.template file

- Set BASE\_URI to the URI to use for the skilled webapp
- Set PORT to the port number to listen on
- Set MONGODB\_URI to the URI of your mongodb database
- Set SESSION\_SECRET to a secret string

**The .env file should not be checked into a version control system as some of these values could be used to compromise the security of the webapp**

When deploying to a hosted service ensure that the .env file is either uploaded to the hosted service or appropriate environment variables are set.

Additionally, you will need to set the following values:

- Set API\_BASE to the URI of your hosted webapp
- Set NODE\_ENV to production

These values ensure that the real URIs are used and not any defined for local development / debugging activities.

### Preparation

In the tools directory there is a seeder.js script, and a skills.json file containing sample data. These should be used to initialise the collections within the database. To start from a blank database remove all the entities from each of the top level groups so that the skills.json file only contains:

```
{
  "skills": [],
  "roles": [],
  "employees": [],
  "users": []
}
```

**Running this script against a previously populated database will completely remove any stored data before importing the seed data. This operation cannot be reversed**

To seed the database navigate to the directory that the code was checked out into and use:

```
node seeder.js
```

The following output should be seen on the command prompt

- Importing table: skills
- Importing table: roles
- Importing table: employees
- Importing table: users
- Initialised skills database with sample data

### Usage

To start the Skilled application navigate to the directory that the code was checked out into and use:

```
node app.js
```

The following output should be seen on the command prompt

```
Skilled app listening at http://localhost:2020
```

Navigate to the URL shown, using your web browser, and the application's main page should be displayed.

**The web app uses some features of HTML 5 , CSS 3 and JS the Internet Explorer is known to not support**

Employee Skill Assessment

HomeEdit Skill GroupsEdit Job RolesEdit EmployeesCreate AssessmentView Assessment

Guest

# Track Employee Skills Against Their Job Role

Talent management on a page.

## Login

Email

Email

Password

Password

We'll never share your email with anyone else.

Sign In

Register

Log Out

## Skills Chart

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**Registering**

In order to use many of the features offered by *Skilled* a user account first needs to be created. Currently, this is a self registration process with no backend verification of who has registered. Users that have self registered are stored in the `users` collection of the backend database. No personal information is stored beyond an email address and password details (in the form of a salted hash). Where no verification process has been implemented, emails only need to be unique, and pass the standard email format validation checks implemented by the web browser.

**Signing in**

The same form can be used to sign in using the previously registered credentials. A signed-in user will be able to access all the implemented functionality of the *Skilled* application.

**Configuring Skill Groups and Skills**

The skill groups and individual skills within them can be configured by following the `Edit Skill Groups` link.

Employee Skill Assessment

HomeEdit Skill GroupsEdit Job RolesEdit EmployeesCreate AssessmentView Assessment

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# Track Employee Skills Against Their Job Role

Talent management on a page.

## Skill Groups

software

hardware

soft skills

Add

Modify

Delete

## Skills

assembler

C++

python

Add

Modify

Delete

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- On the left, the available skill groups can be added to, renamed and deleted.
  - On the right, the skills within the currently selected group can be added, renamed and deleted.
- If a skill was previously used in a role definition or in an employee assessment then it will be unaffected by any modifications. This allows roles to evolve over time without a complex set of table dependencies. It also makes it possible to potentially revisit an old version of a role, or a previously carried out assessment without it being affected by recent changes.
- The ability to go back to older versions of roles or older employee assessments has not yet been implemented, however the data in the database is structured to make this relatively simple to add.

**Configuring Job Roles and Skill Requirements**

The job roles and skill requirements for each role can be configured by following the `Edit Job Roles` link.

# Track Employee Skills Against Their Job Role

Talent management on a page.

### Roles

software engineer

hardware engineer

verification engineer

Add

Modify

Delete

### Skills

software - assembler	3	
software - C++	3	
software - python	3	
hardware - analogue circuit design	1	
hardware - design for EMC	1	
hardware - PCB layout	1	
soft skills - personal presence	1	
soft skills - leadership	1	

Save

Lorem ipsum dolor sit amet consectetur adipisicing elit. Sapiente repudiandae odit laborum! Quo illum vitae, in facilis beatae ipsa similique modi [Back to top](#) sequi quis cupiditate est? Nesciunt minus preferendis vitae deleniti?

- On the left, the available job roles can be added to, renamed and deleted.
- On the right, the level of skill required by the selected job role can be set to a value between 0 (not required) to 4 (expert).

Adding a new job role will create an entry in the `roles` collection containing all the groups and skills currently defined in the `skills` collection. By default, the required level for all skills will be 0. Once the levels have been set and reviewed click save to store them in the database. To revise the skill requirements of an existing role, select it, set the levels as necessary and then click save.

Saving a role will add a new timestamped entry to the role's required skills field, making it possible to review changes to a role over time in a future feature update.

### Configuring Employees

Employees and their details can be configured by following the [Edit Employees](#) link.

# Track Employee Skills Against Their Job Role

Talent management on a page.

### Employees

Joe Bloggs

An Other

Add

Delete

### Employee Details

Name	Joe Bloggs
Email	joe.bloggs@domain.com
Job Title	software engineer

Save

Lorem ipsum dolor sit amet consectetur adipisicing elit. Sapiente repudiandae odit laborum! Quo illum vitae, in facilis beatae ipsa similique modi [Back to top](#) sequi quis cupiditate est? Nesciunt minus preferendis vitae deleniti?

- On the left, employees can be added and deleted.
- On the right, employee details can be modified and saved.

Adding a new employee will create an employee placeholder, which will be visible in the employee list and employee details. Once selected the employee's details can be configured and saved to the database. As employees from different locations around the globe may have different titles for the same role the decision was made not to use the role to populate the title field. Names may be the same within a business but email addresses are unique and are therefore used as the primary method of referencing a specific employee.

### Creating Employee Assessments

Employees assessments can be created by following the [Create Assessment](#) link.

# Track Employee Skills Against Their Job Role

Talent management on a page.

### Employee Assessment

Role

software engineer

Employee

Joe Bloggs

Create Assessment

### Skills

software - assembler

Required	3	Actual	0
----------	---	--------	---

software - C++

Required	3	Actual	0
----------	---	--------	---

software - python

Required	3	Actual	0
----------	---	--------	---

hardware - analogue circuit design

Required	1	Actual	0
----------	---	--------	---

hardware - design for EMC

Required	1	Actual	0
----------	---	--------	---

hardware - PCB layout

Required	1	Actual	0
----------	---	--------	---

soft skills - personal presence

- On the left, an assessment can be created.
- On the right, the achieved skill levels can be populated.

An employee can be assessed against any of the available roles making it simple to monitor an employee's capabilities even if they are promoted or change specialisation. A new assessment will use the most upto date set of required skills associated with the selected role. New assessments will have a value of 0 for all achieved skill levels by default.

After all the skills have been assigned the required level, the save button can be used store the values in the database.

View Employee Assessments

Completed employees assessments can be viewed by following the View Assessment link

# Track Employee Skills Against Their Job Role

Talent management on a page.

### Employees

Joe Bloggs

An Other

### Latest Assessment

Skill	Required	Actual
software - assembler	3	0
software - C++	3	0
software - python	3	3
hardware - analogue circuit design	1	0
hardware - design for EMC	1	0
hardware - PCB layout	1	0
soft skills - personal presence	1	0

- On the left, a list of employees to review the assessments of.
- On the right, a radar chart of all the skills from the employee's latest assessment.

The generated radar chart highlights the area representing the required skills in green and the area representing the achieved skills in purple. Both areas have an alpha channel applied so that when one area overlays the other both are still visible.

Currently only the latest employee assessment is displayed, however the database is structured so that previous assessments are also saved, along will all data needed to generate a visualisation of the assessment, even if roles and skills have changed since the assessment was recorded