Skilled - Assessment 1 of COM519 - Advanced Database Systems

C Lint Project failing

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/

Software Dependencies

The following must be installed or accessible

- node js Node JS website (https://nodejs.org/en/)
 mongodb MongodDB website (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:

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

- Set BASE_URI to the URI to use for the Skilled webapp
 Set FORT to the port number to listen on
 Set MONGOBE_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 <code>seeder.js</code> <code>soript</code>, and a <code>skills.json</code> 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 <code>skills.json</code> 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 ${\tt Skilled}$ 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

Track Employee Skills Against Their Job Role

Talent management on a page





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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 enail 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.

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 Home Edit Skill Groups Edit Job Roles Edit Employees Create Assessment View Assessment Track Employee Skills Against Their Job Role Skill Groups Skills soft skills 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.

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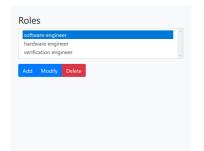
If a skill was previously used in a role definition or in an employee assessment then it will be unaffected by any modifications. This allows roles to evolve over time without a complex set of table dependencies. It also makes it possible to potentiality revist an old version of a role, or a previously 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.

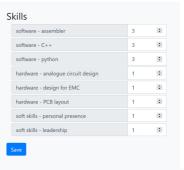
Configuring Job Roles and Skill Requirements

The job roles and skill requirements for each role can be configured by following the ${\tt Edit}$ ${\tt Job}$ ${\tt Roles}$ link

Track Employee Skills Against Their Job Role

Talent management on a page





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- 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 to possible to review changes to a role over time in a future feature update.

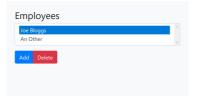
Configuring Employees

Employees and their details can be configured by following the Edit Employees

Employee Skill Assessment Home Edit Skill Groups Edit Job Roles Edit Employees Create Assessment View Assessment

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Track Employee Skills Against Their Job Role





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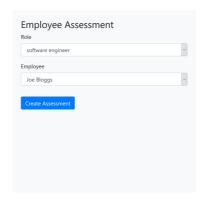
- On the left, employees can be added and deleted.
 On the right, employee details can be modified and saved.

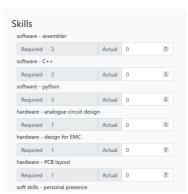
Adding a new employee will create an employee placeholder, which will be visible in the employee list and employee details. Once selected the employee's details can be configured and saved to the database. As employees from different locations around the globe may have different titles for the same role 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

Track Employee Skills Against Their Job Role

Talent management on a page.





- On the left, an assessment can be created.

 On the right, the achieved skill levels can be populated.

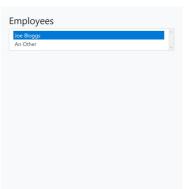
An employee can be assessed against any of the available roles making it simple to monitor an employee's capabilities even if they are promoted or change specialisation. A new assessment will use the most upto date set of required skills associated with the selected role. New assessments will have a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

View Employee Assessments

Completed employees assessments can be viewed by following the <code>View Assessment link</code>

Employee Skill Assessment Home Edit Skill Groups Edit Job Roles Edit Employees Create Assessment View Assessment

Track Employee Skills Against Their Job Role





- 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 skill visible.

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