

FIT2104 Assignment 4

A Business Case Analysis for Nathan Jims' B2B Management Solutions

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Current Business Problems

“Nathan Jims is a professional recruiter specialising in B2B projects.”¹ Nathan has always been the sole employee conducting business for his company, Nathan Jims’ B2B Solutions. He conducts his networking using word-of-mouth, and utilising outreaching methods, such as distributing leaflets and printouts with his company details and processes. At first, Nathan found these methods for connecting to the community sufficient given the company’s capacity. However, as his business grew and scaled over time, he found that much of his time was being consumed by the administrative tasks involved with the management of projects, and especially with the onboarding of new contractors and organisations that he collaborates with.

So, Nathan attempted to address the challenge of registering new contractors and organisations with the use of Google Forms. He found the forms easy to create and maintain as he could adjust the questions however he needed. Furthermore, he could easily distribute the forms using email. The details from the responses are entered into a database that keeps track of the project’s relationship to a contractor and organisation.

However, Nathan encountered two problems immediately. He found there was a sheer volume of incoming responses from contractors and organisations of which the data was not being validated nor being substantiated. This resulted in Nathan verifying the details of each form and then entering them into the database individually, thereby leading to considerable administrative overhead in his work.

Nathan was soon met with an overwhelming magnitude of database entries that caused him difficulties identifying specific attributes about a project, contractor or organisation. This resulted in him having to refer to the entire, unfiltered, database when locating any precise information, rather than being able to search for it. Here, he was also unable to distinguish certain relationships that are important for his work such as projects assigned to organisations and/or contractors.

Nathan also found it difficult to manage messages between contractors/organisations he is working with.

Finally, Nathan still does not have a public facing website informing the world about his character and his company. So, the visibility of his company and the scope of his potential clientele is restricted to his manual outreach methods. This also limits those who are interested in the company and would like to inquire further, as there is no streamlined process to do so currently.

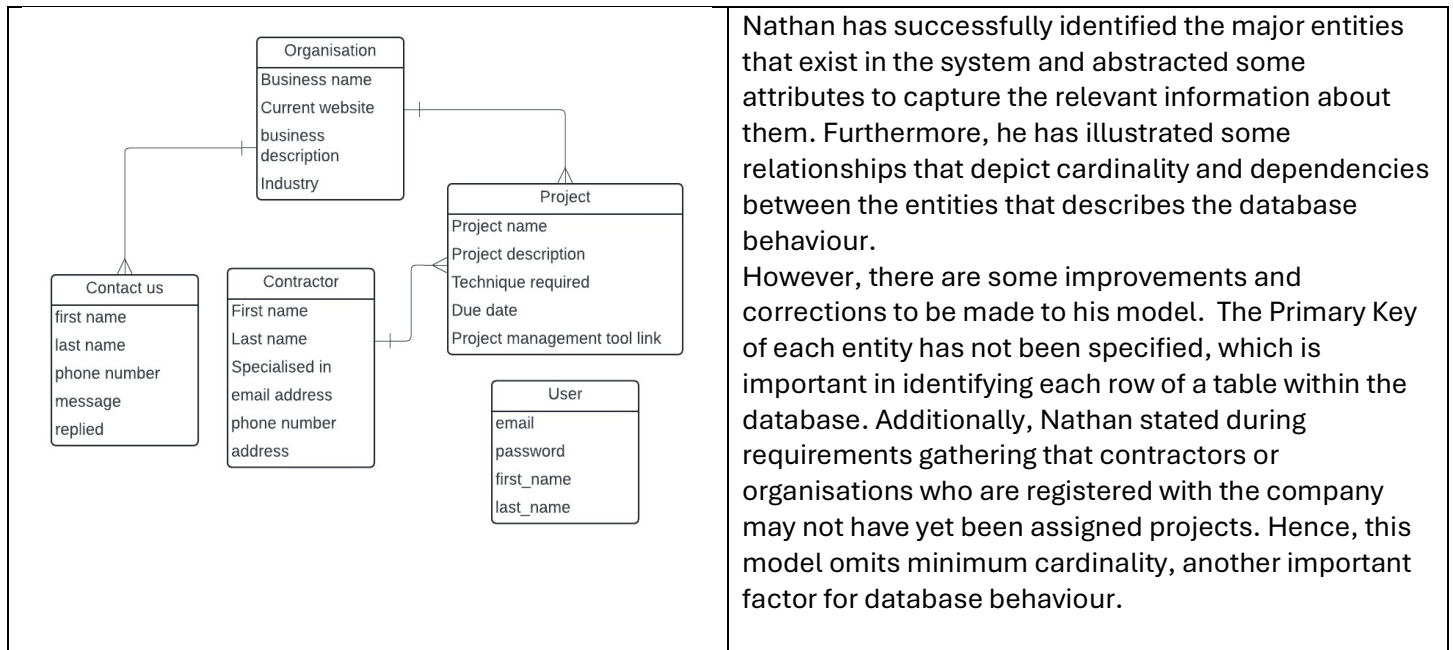
Ultimately, the existing system and processes require Nathan to invest too much of his time in trivial and administrative tasks that deter him from his more important business goals and activities.

Nathan’s early efforts in managing incoming forms involved attempts to learn the foundations and principles of relational databases. His limited knowledge led him to create an entity relationship diagram (ERD) to model the relationships within his database.

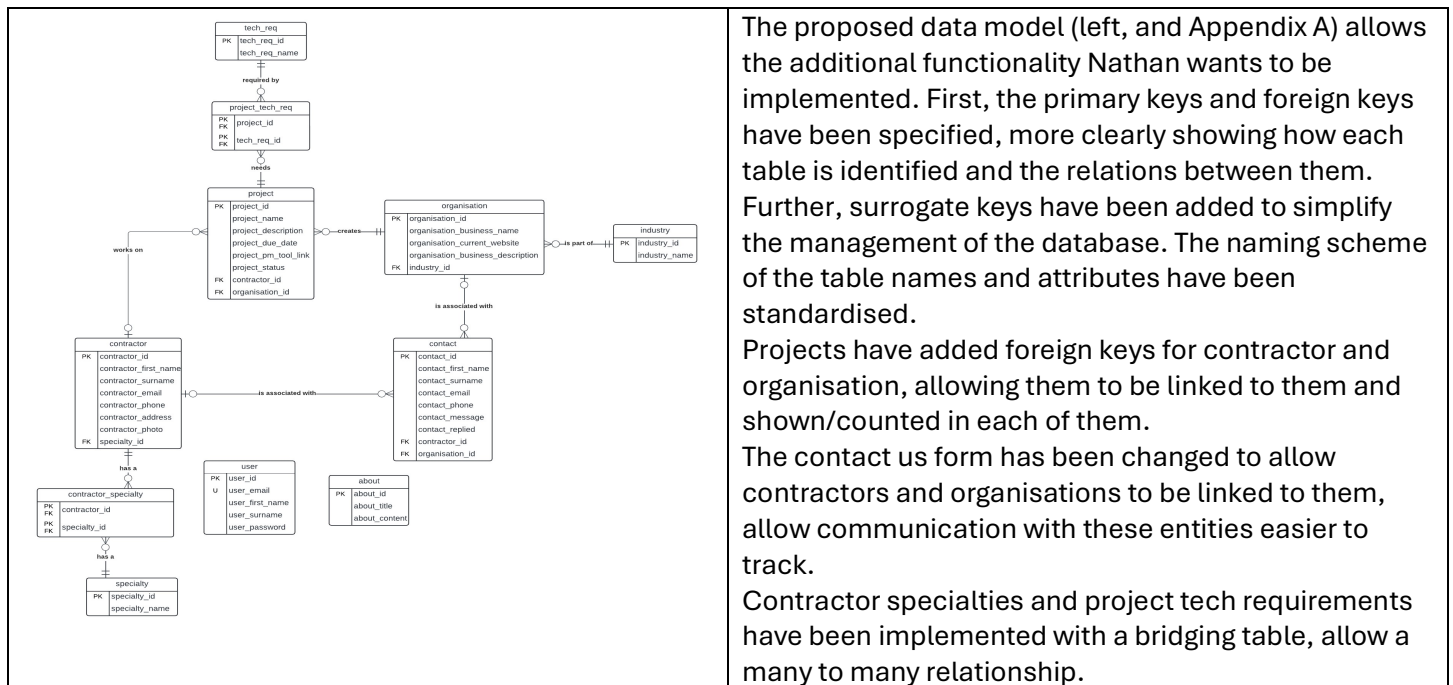
¹ FIT2104 Semester 2 2024, Assignment 4 Specifications

Data Model

Nathan's Entity Relationship Diagram



Proposed Entity Relation Diagram



Proposed System Functionality

This section of the report aims to outline the decisions made and key features of the proposed system functionality to bring Nathan's requirements to fruition.

Public Facing Website

Referring to *Appendix Bi*, a major requirement for the system was a public facing component which acted as a landing point for contractors and organisations to register themselves, potential clientele or anyone in interested in the company to send general inquiries and an overall introduction to Nathan's professional services and his company's vision. Having a website with information about the business and forms to contact Nathan achieve this goal.

Landing and navigation

This page provides key information about the business, as well as links to parts of the website users may want to navigate to. A navigation bar that enables users to navigate web pages is consistent among all pages and is placed at the top of the page.

About Us

To provide more details about the business, an about us page can be navigated to with the link in the universal footer.

Registration

Contractors and organisations can navigate to the registration pages where they can enter the requested details into the fields that will be appropriately sanitised. The contractor can then select their specialities from a list, and enter new ones if needed, as seen in *Register Contractor Additional Specialty Dropdown*. Organisations simply register themselves using text input fields *Register Organisation*. All form data is stored in the database.

Contact Form

Users can submit a general inquiry to Nathan about his business services, streamlining the process of receiving these inquiries and keeps them in a centralised place. They provide the prompted details as seen in *Contact Us*.

Authentication

Authentication functionality for accessing the system's admin pages will be implemented with a login. This login is part of the header of the customer facing pages, as seen in *Login Dropdown*. A valid username and password must be entered to access the system. After logging in, a logout button is present at the top of the page to log out of the system.

Finding Records

Finding records quickly is an important requirement for this system. Having suitable navigation and searching systems helps achieve this.

Navigation

After logging in, the user lands on a dashboard, providing quick access to the rest of the system. A navigation bar is also present to navigate to other parts of the system swiftly from anywhere.

Additionally, the navigation bar also allows him to do so from anywhere within member facing section of the website. This is demonstrated in *Appendix Bii*.

Navigation is further improved using links, like the ones on the project list page linking to the contractor and organisation relevant to it (*list all projects*), and the ones linking to the projects of an organisation/contractor (*view contractor/view organisation*).

These navigation features allow Nathan to find information quickly, and view related information in as few clicks as possible.

Filtering and Searching

For projects, organisations, contractors, and contact us forms there are list pages, where all entries of these entities are present in a table. Each table is filterable by column, with both ascending and descending options. A search bar is available in all tables, allowing keywords to be typed and records with the word surfaced.

Project Count

A column showing the amount of projects a contractor and organisation have completed/requested is shown on the *List All Contractors* and *List All Organisations* pages. This allows Nathan to more easily find the most active contractors/organisations who use his services.

Viewing and Adding Records

Add Record

New projects, contractors, and organisations can be added to the system. The relevant details are entered into either the *Add Project*, *Add Contractor*, or *Add Organisation* page. Projects can have many tech requirements (*Add Project Show Technical Requirement*), and contractors can have multiple specialties.

View Record

Records of projects, contractors, organisations, and contact forms can be viewed using the view button on the list pages, taking Nathan to the *View Project*, *View Contractor*, *View Organisation*, or *View Contact Us Form* page respectively. These pages let Nathan see all the details of the record. The contractor and organisation pages have tables of their related projects, allowing quick access to records Nathan may be looking for.

Input Validation

Throughout the system, whenever an input is required, a hint will be shown with the expected form on the input. If this form is not met, an error is shown and the form is not submitted, as seen in *Appendix C* where a wrong email form has been entered. Required fields are also prompted if the form is attempted but not entered. This allows all records of a particular type to follow a standard, making them easier to sort through and use.

Conclusion

Overall, the proposed system will be a good solution to the business problems that the business is facing.

The data model has been updated to allow the collection of the additional elements needed to support the features that will solve the problems with the current system, through adding relationships between entities and capturing additional data. This allows related records to be found much more quickly.

A public facing website will allow potential clients to find information about Nathan, as well as contact or register through the provided forms, providing an online presence.

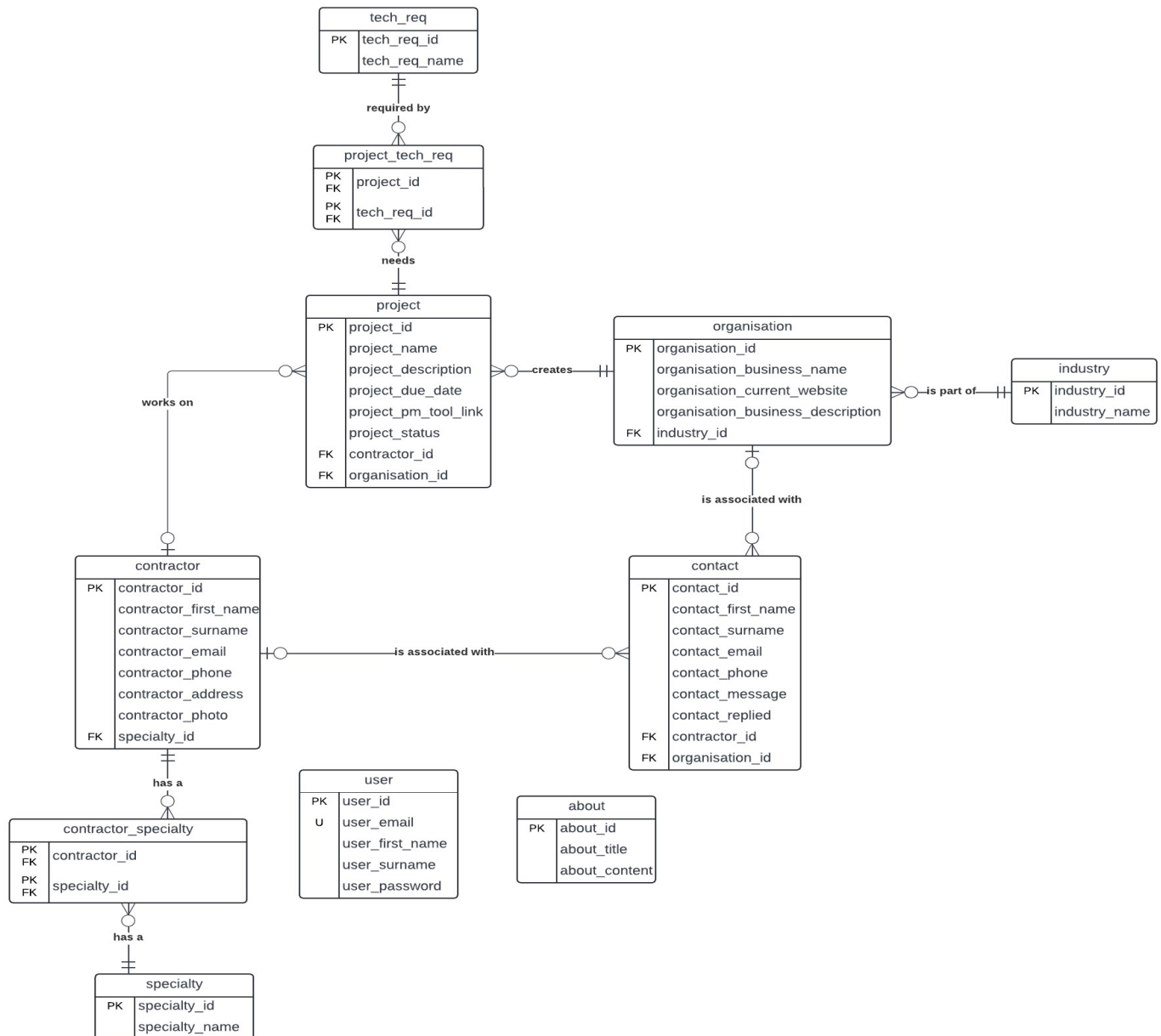
All the data collected from forms are moved to one central system, allowing easier access to it. The management of all entities is also centralised to the system. This all allows a reduced administrative load.

Further, the improved navigation will allow Nathan to more quickly find records, improving the efficiency of his business.

Ultimately, these improvements in operational efficiency will allow the business to be more scalable. and the robustness will improve Nathan's day to day life.

Appendix A – Proposed Data Model

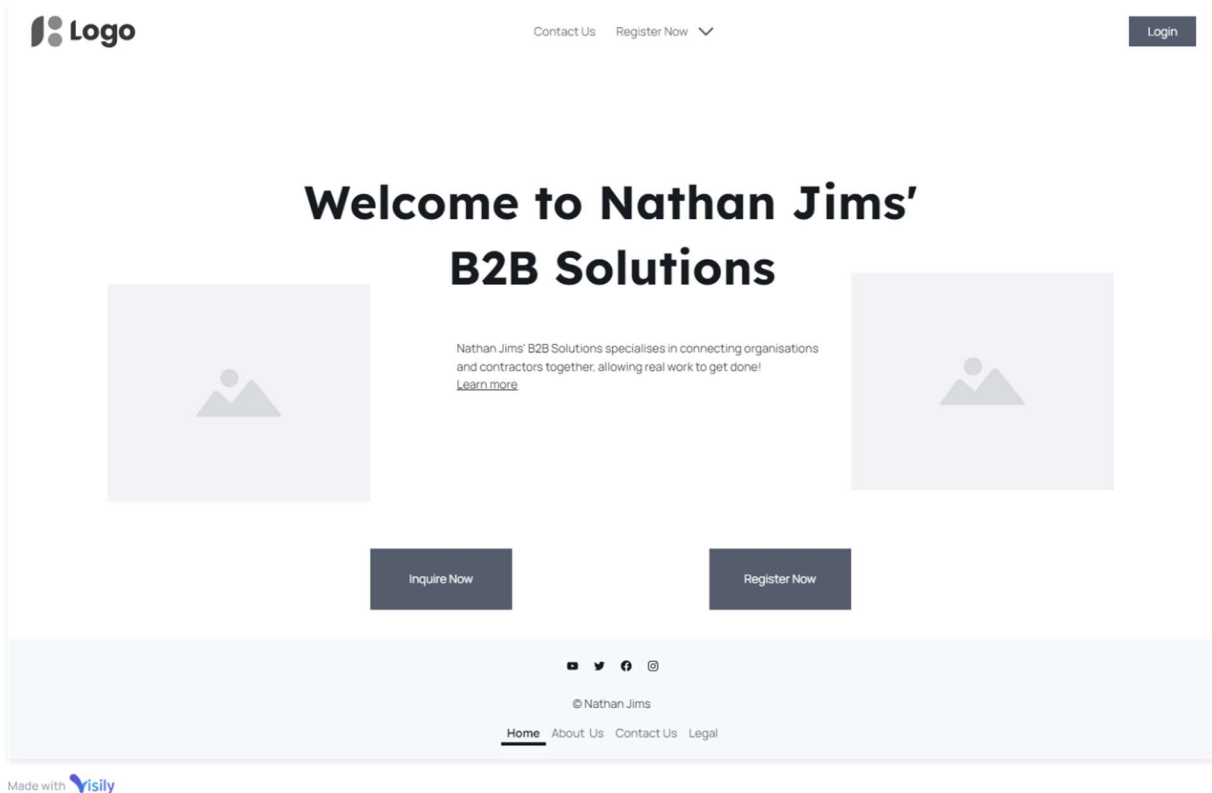
Below is the proposed data model.



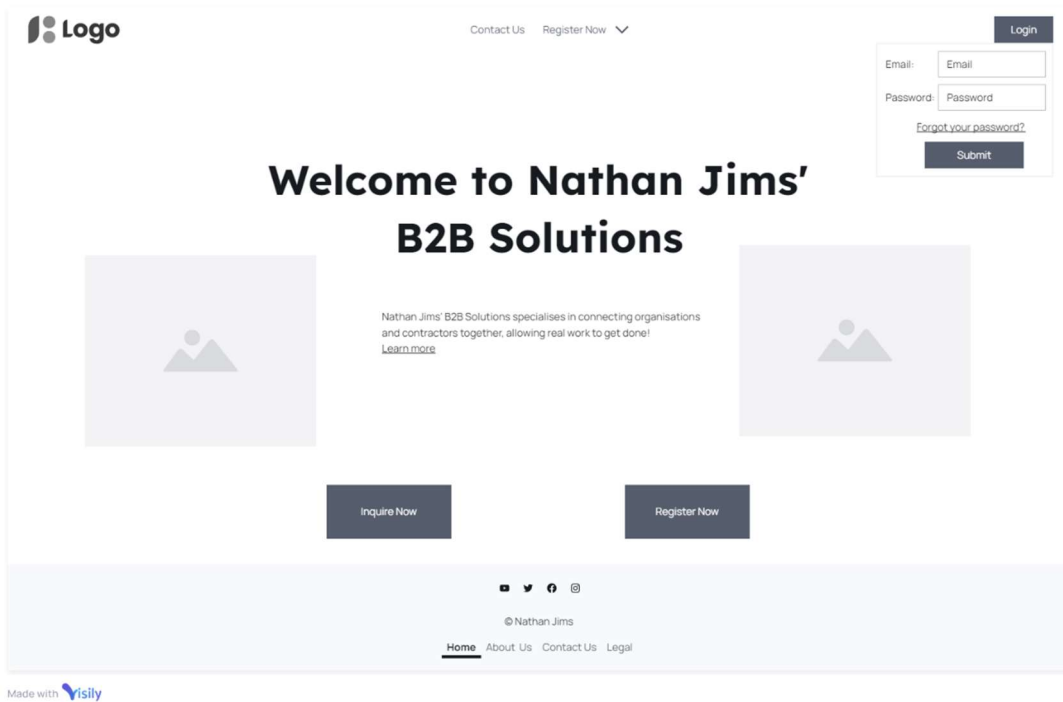
Appendix B – Website Prototypes

i. Customer Facing Pages

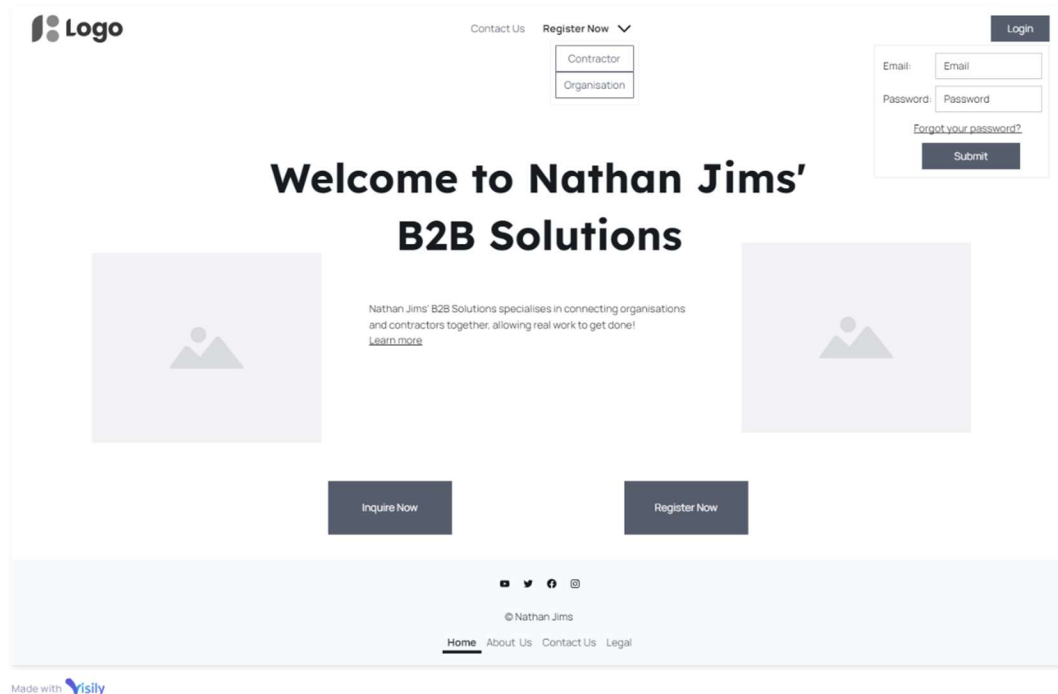
Landing Page (below)




Login Dropdown (below)



Register Dropdown (below)



Register Contractor (below)



[Contact Us](#)
[Register Now](#)

[Login](#)

Contractor

Organisation

Register Contractor

First name

First name

Last name

Last name

Email address

example@example.com

Phone number

+61

Specialty


<input type="checkbox"/> Cybersecurity	<input type="checkbox"/> C#
<input type="checkbox"/> Data Analysis	<input type="checkbox"/> MySQL
<input type="checkbox"/> Web Application Development	<input type="checkbox"/> C++
<input type="checkbox"/> Mobile Application Development	<input type="checkbox"/> Java
<input type="checkbox"/> UI/UX Design	<input type="checkbox"/> Python

Other specialties

Submit

Made with 

Register Contractor Additional Specialty Dropdown (below)



[Contact Us](#)
[Register Now](#)

[Login](#)

Contractor

Organisation

Register Contractor

First name

First name

Last name

Last name

Email address

Email

Phone number

Phone number

Address

Address

Specialty

<input type="checkbox"/> Cybersecurity	<input type="checkbox"/> C#
<input type="checkbox"/> Data Analysis	<input type="checkbox"/> MySQL
<input type="checkbox"/> Web Application Development	<input type="checkbox"/> C++
<input type="checkbox"/> Mobile Application Development	<input type="checkbox"/> Java
<input type="checkbox"/> UI/UX Design	<input type="checkbox"/> Python

program

☐ Functional Programming
 ☐ Object oriented programming
 ☐ Programming

Made with 

Register Contractor Select Multiple Additional Specialties (below)

Contractor
Organisation

Register Contractor

First name Last name
First name Last name

Email address Phone number
Email Phone number



Address
Address

Specialty	
<input type="checkbox"/> Cybersecurity	<input type="checkbox"/> C#
<input type="checkbox"/> Data Analysis	<input type="checkbox"/> MySQL
<input type="checkbox"/> Web Application Development	<input type="checkbox"/> C++
<input type="checkbox"/> Mobile Application Development	<input type="checkbox"/> Java
<input type="checkbox"/> UI/UX Design	<input type="checkbox"/> Python

X Functional Programming X Gantt Charts

Submit

Register Organisation (below)

Contact UsRegister Now 

Contractor
Organisation

Login

Register Organisation

Business name
First name

Contact name
Contact name


Industry
Industry

Contact email address
example@example.com

Current website
www.example.com


Business description
Business description

Submit





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About Us (below)

Contact UsRegister Now 


Contractor
Organisation

Login

About Us


Nathan Jims is a seasoned professional recruiter specializing in B2B projects. With years of experience in connecting SMEs and contractors with business opportunities, Nathan's expertise lies in building strong networks and driving project success.

As our company rapidly expands, we are transitioning from traditional outreach methods to a streamlined, web-based system that allows us to focus more on what truly matters—building relationships and delivering exceptional service. Our new system empowers us to efficiently manage client information and showcase our business projects, ensuring that we continue to connect the right people with the right opportunities.




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Contact Us (below)

 [Contact Us](#) [Register Now](#) [Login](#)

Contact Us


First name	Last name
<input type="text"/>	<input type="text"/>
Email address	Phone number
<input type="text" value="example@example.com"/>	<input type="text" value="+61"/>
Message	
<input type="text" value="Input text"/>	

Submit

[YouTube](#) [Twitter](#) [Facebook](#) [Instagram](#)

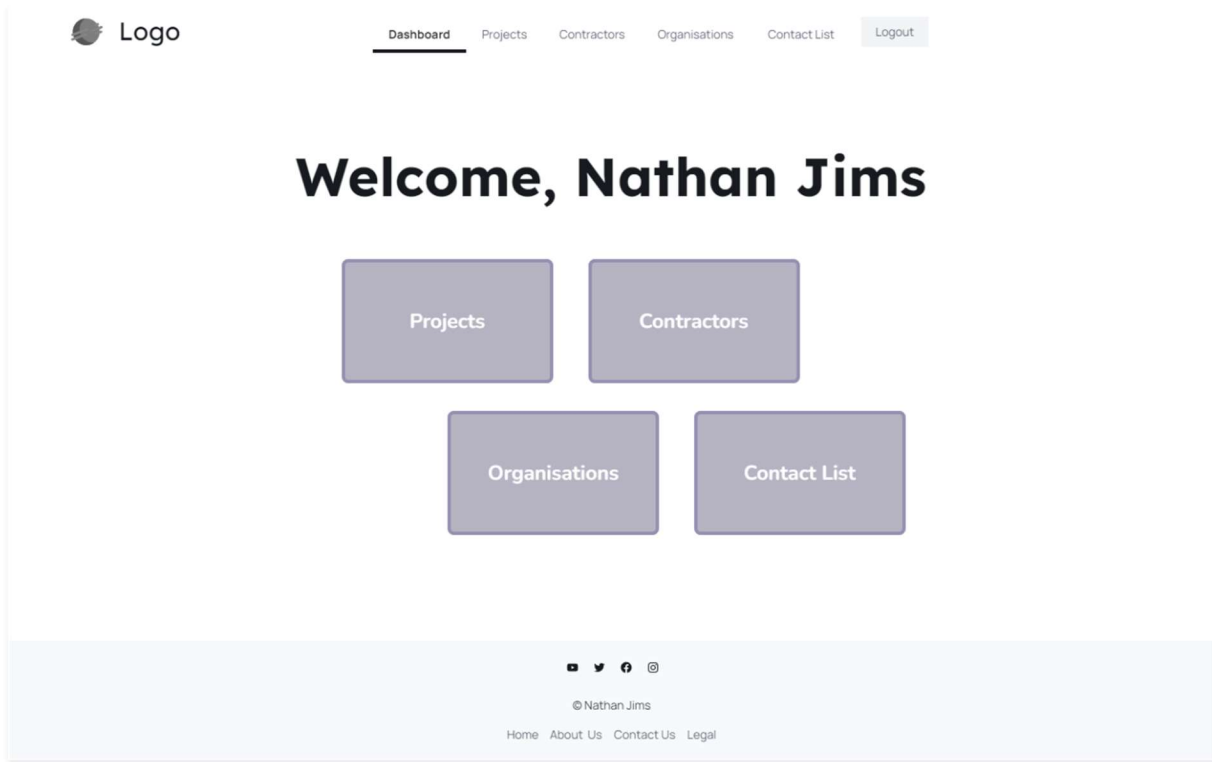
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ii. Dashboard

Admin Dashboard (below)



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iii. Project Pages

List All Projects (below)

Logo

DashboardProjectsContractorsOrganisationsContact ListLogout

Add Project

Projects

Search

ID	PROJECT NAME	DUE DATE	CONTRACTOR	ORGANISATION	STATUS	Inspect	Edit	Delete
1	Smart Home Automation	16/07/2024	Elizabeth Hall	Intelliweb Technologies	In Progress	View	Update	Delete
2	Sustainable Landscaping	20/03/2024		Green Earth Landscaping	Waiting	View	Update	Delete
3	Urban Construction Project	17/07/2024	Anthony Davis	RadarNet	Done	View	Update	Delete
4	Cybersecurity Upgrade	05/06/2024	Joseph White	Total Tech Systems	Cancelled	View	Update	Delete
5	Health Management System	25/12/2024		HealthnPlus Clinics	Done	View	Update	Delete
6	Green Cleaning Initiative	05/02/2024	John Clark	Kinetic Solutions	Waiting	View	Update	Delete
7	Education Platform	31/10/2024	Nicole Davis	WorldWide Solutions, Inc.	In Progress	View	Update	Delete

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Add Project (below)

Logo

DashboardProjectsContractorsOrganisationsContact ListLogout

Projects > Add Project

Add Project

Project name

Project description

Technical requirements

Select or Enter

Project due date

Select Date

Project PM Tool Link

Contractor

No Contractor

Organisation

No Organisation

Back to Projects

Add Project


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Add Project Select Technical Requirements (below)



Projects > Add Project

DashboardProjectsContractorsOrganisationsContact ListLogout

Add Project

Project name

Solar Star Power

Project description

Description

Technical requirements

Select or Enter

☐ Python

☐ JavaScript

☐ Java

☐ C++

Manage

Project due date

Select Date

Project PM Tool Link

Organisation

No Organisation


Back to Projects

Add Project


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Add Project Show Selected Technical Requirements



Projects > Add Project

DashboardProjectsContractorsOrganisationsContact ListLogout

Add Project

Project name

Solar Star Power

Project description

Description

Technical requirements

X Python

Project due date

Select Date

Project PM Tool Link

Enter Link

Contractor

No Contractor

Organisation

No Organisation


Back to Projects

Add Project

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View Project Details

Logo

DashboardProjectsContractorsOrganisationsContact ListLogout

Projects > Smart Home Automation


Project Details

Project ID	1
Project Name	Smart Home Automation
Description	Develop an AI powered home automation system.
Technical Requirements	Python JavaScript Java
Due Date	26/08/2023
PM Tool Link	https://pmtool.com/Autedolorecommodoipsumut.am
Contractor	ID: 1 Name: Elizabeth Hall
Organisation	ID: 2 Name: Intelliweb Technologies
Status	In Progress

Back to ProjectsUpdate Project


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


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iv. Contractor Pages


List All Contractors (below)

 [Dashboard](#) [Projects](#) [Contractors](#) [Organisations](#) [Contact List](#) [Logout](#)

Contractors

ID 	NAME 	EMAIL	PHONE	SPECIALTY 	PROJECTS COMPLETED 	Inspect	Edit	Delete
1	Daniel Jackson	real_danieljackson@hotmail.com	+61123456789	PHP	7	View	Update	Delete
2	Jacob Davis	jdavis@hotmail.com	+61583083511	Javascript	0	View	Update	Delete
3	Ryan Brown	rbrown@yahoo.com	+61234567890	Networking	32	View	Update	Delete
4	Ryan Brown	rbrown@hotmail.com	+61634508023	Javascript	4	View	Update	Delete
5	Sarah Allen	sallen1996@gmail.com	+61814949034	Bash	44	View	Update	Delete
6	Anthony Taylor	ataylor@yahoo.com	+61825176845	PHP	88	View	Update	Delete

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Add Contractor (below)

Logo

DashboardProjectsContractorsOrganisationsContact ListLogout

Contractors > Add Contractor

Add Contractor

First name
First name

Last name
Last name

Email address
Email

Phone number
+61

Address
Address

Specialty

☐ Cybersecurity

☐ Data Analysis

☐ Web Application Development

☐ Mobile Application Development

☐ UI/UX Design

☐ C#

☐ MySQL

☐ C++

☐ Java

☐ Python

Other specialties

Back to Contractors

Add Contractor

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View Contractor (below)

Logo

DashboardProjectsContractorsOrganisationsContact ListLogout

Contractors > Daniel Jackson

Contractor Details

Contractor ID	1	
Full Name	Daniel Jackson	
Email Address	real.danieljackson@hotmail.com	
Phone Number	+61832366711	
Specialty	PHP	
Projects	Completed Projects	0
	Active Projects	0

CONTACT FORMS		
05/03/2024	✓ Replied	<div>Go to Form</div>
17/09/2024	✓ Replied	<div>Go to Form</div>

Project Name	Status
Smart Home Automation	In Progress
Health Management System	Waiting
Cybersecurity Upgrade	Done
Health Management System	Done

Back to Organisations

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v. Organisation Pages

List All Organisations (below)

Logo

DashboardProjectsContractorsOrganisationsContact ListLogout

Organisations

Search

ID ↑↓	NAME ↑↓	WEBSITE	DESCRIPTION	INDUSTRY ↑↓	ACTIVE PROJECTS ↑↓	CONTACT FORM REPLIED ↑↓	Inspect	Edit	Delete
8	Tech Innovations	https://www.techinnovations.com.au	Leading provider of cutting-edge technology solutions.	Information Technology	0	✓	<button>View</button>	<button>Update</button>	<button>Delete</button>
9	Green Earth Landscaping	https://www.greenearthlandscaping.com.au	Expert landscaping services focused on sustainability.	Landscaping	3	✓	<button>View</button>	<button>Update</button>	<button>Delete</button>
10	BuildPro Construction	https://www.buildproconstruction.com.au	High-quality construction services for residential and commercial projects.	Construction	2	✗	<button>View</button>	<button>Update</button>	<button>Delete</button>
11	SecureNet Pty Ltd	https://www.securenet.com.au	Provider of comprehensive cybersecurity solutions.	Cybersecurity	1	✗	<button>View</button>	<button>Update</button>	<button>Delete</button>
12	HealthPlus Clinics	https://www.healthplusclinics.com.au	Network of healthcare clinics offering a range of medical services.	Healthcare	3	✓	<button>View</button>	<button>Update</button>	<button>Delete</button>

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List All Organisations Delete Confirmation (below)

Logo

DashboardProjectsContractorsOrganisationsContact ListLogout

Organisations

Search

ID	NAME	WEBSITE	DESCRIPTION	INDUSTRY	ACTIVE PROJECTS	CONTACT FORM REPLIED	Inspect	Edit	Delete
8	Tech Innovations	https://www.techinnovations.com.au	Leading provider of cutting-edge technology solutions.	Information Technology	0	✓	View	Update	Delete
9	Green Earth Landscaping	https://www.greenearthlandscaping.com.au	Residential and commercial landscaping services.	Landscaping	0	✓	View	Update	Delete
10	BuildPro Construction	https://www.buildproconstruction.com.au	Residential and commercial construction projects.	Construction	0	✗	View	Update	Delete
11	SecureNet Pty Ltd	https://www.securenet.com.au	Provider of comprehensive cybersecurity solutions.	Cybersecurity	1	✗	View	Update	Delete
12	HealthPlus Clinics	https://www.healthplusclinics.com.au	Network of healthcare clinics offering a range of medical services.	Healthcare	3	✓	View	Update	Delete

✓ Delete Organisation

You are about to delete the details for organisation:
ID: 8 | NAME: Tech Innovations
ACTIVE PROJECTS: No

CancelConfirm

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View Organisation (below)

Logo

DashboardProjectsContractorsOrganisationsContact ListLogout

Organisations > Tech Innovations

Organisation Details

Organisation ID	8	
Business Name	Tech Innovations	
Website	https://www.techinnovations.com.au	
Description	Leading provider of cutting-edge technology solutions.	
Industry	Information Technology	
Projects	Total Projects	0
	Active Projects	0

CONTACT FORMS		
05/03/2024	✓ Replied	Go to Form
17/09/2024	✓ Replied	Go to Form


Project Name	Status
Smart Home Automation	In Progress
Health Management System	Waiting
Cybersecurity Upgrade	Done
Health Management System	Done

[Back to Organisations](#)

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vi. Contact Us Forms

List Contact Us Forms (below)

 Logo

DashboardProjectsContractorsOrganisationsContact ListLogout

Contact Forms

Search


FIRST NAME	LAST NAME	EMAIL ADDRESS	PHONE NUMBER	REPLIED	REGISTRATION	MESSAGE
Daniel	Jackson	real.danieljackson@hotmail.com	+61123456789	✓	View	View
Ryan	Brown	rbrown@hotmail.com	+61234567890	✗	View	View
Barry	Allen	barryallen@theflash.com	+61345678901	✗	Not registered	View
Oliver	Queen	oliver.queen@thearrow.com	+61456789012	✓	View	View
Iris	West-Allen	iriswestallen@theflash.com	+61567890123	✓	View	View
Felicity	Smoak	felicity.smoak@thearrow.com	+61678901234	✓	Not registered	View

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View Contact Us Form (below)

 Logo

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View Contact Form

Contact Forms > Daniel Jackson


Full name	Daniel Jackson
Email	real.danieljackson@hotmail.com
Phone number	+61123456789
Contractor name	Daniel Jackson
Organisation name	Green Earth Landscaping
Replied?	Yes

Message

Hello Nathan B2B. I was enquiring about finding a person to complete a job for me. I am in need of a new ticketing system for my organisation. The system needs to be able to take in IT requests then give it to the tech team. It also needs to allow our current ticketing system data to be moved into it.
Let me know if you want to work together!
Cheers, Daniel Jackson from Green Earth Landscaping


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Appendix C – Client Side Email Input Validation

Email

 Please include an '@' in the email address. 'helloworld' is missing an '@'. Mes