

Project Management Tool  
Final Portfolio Submission  
Executive Summary - Design HTML Interface and DML SQL

Group 10 - Key Energetics  
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**Website:**

<http://flip2.engr.oregonstate.edu:33524/>

**Executive Summary:**

The development of the Key Energetics Agenda Master has been a process, one with continuous refinement and attention to detail. In the early stages of our app, we rewrote the business summary by providing specifications for addressing the scale of the project. For example, we added sample data to house 5 developers that could be assigned to projects and work on tasks. Additionally, we added 5 customers/clients that would bring their projects and annual revenues to the Key Energetics team. We also made the following changes to the database outline to maintain consistency with the ERD and schema: added first\_name and last\_name to the Developer entity, changed data type lengths in database outline to be consistent with the ERD and schema.

Within week 2, development began on the coding structure itself, with forms added for assigning a task to a developer, awarding a certification to a developer, assigning a developer to a project, and adding a task to a project. Feedback from peer reviews and constructive criticism from TAs helped to shape the direction in which the website should take, especially in regards to the logic behind relationships between entities. Insertion of values for the new intersection tables using foreign keys to depict the M:M relationship were created in the DML file. The relationship between developers and projects was forged to represent a nullable relationship, in that developers can exist without being assigned to a project.

Weeks 3 and 4 consisted of further refinement, with buttons added to the UI to add user-friendly service and style. The buttons were placed to allow for CRUD functionality, such as adding a customer, editing a current customer, deleting a customer, and displaying the current roster of customers. These buttons received icons and names in Week 5, which provided the user with definitive functions such as "Manage Project", or "Add a New Developer."

Finally, in the last week of development, the project took shape in fully operational CRUD functionality, with options for the user to even see the developers assigned to each project and move them to other projects. The styling of the website has come to life with minimalist CSS styling using themes of blue gradients and colorful red, green, and blue button designs. From the beginning of the project until its last stage of development, the need for organization in project management has been fulfilled by the Agenda Master due to its purposeful structure and user-friendly interface.

**Project Outline and Database Outline, ERD Schema, and Sample Data Updated Version**

## Project Outline

Key Energetics (KE) is a software development company that employs 20 developers and services approximately 7 customers. At a given time, KE may have as many as 4 projects in development for our customers. Each of our projects will have some number of developers assigned to working on it. Each project will have approximately 20 tasks associated with its completion.

Additionally, each of KE's developers holds some form of technical certification. In certain cases, these certifications allow their holders to work on specific projects when others may not have the expertise to do so. On average, each of KE's developers holds 3 certifications.

We are developing a database application to keep track of KE's operations. This application will allow a project manager (the user) to correlate projects with the customers who have commissioned them; assign developers to a project; and list tasks that must be completed on a project. Additionally, it will allow for the tracking of all of KE's developers' certifications.

## Database Outline

Many developers may work on a single project. Many developers may be assigned many tasks. A project may have many tasks associated with it. A customer may have many projects to be delivered to them.

Developers: records the details of employees responsible for creating, coding, installing, and maintaining the software systems.

- developer\_id: int, auto\_increment, unique, not NULL, PK
- first\_name: varchar(100), not NULL
- last\_name: varchar(100), not NULL
- email: varchar(100), not NULL
- phone\_number: varchar(100), not NULL
- Relationships
  - M:N relationship between developer and task is implemented with an interaction table "developer\_has\_task" implemented between developer and task. developer\_id and task\_id are FKs within this table.
  - 1:M relationship between developer and project is implemented with project\_id as an FK inside of developer.

Projects: records the details of beginning, ongoing, or completed plans involving the resource allocation, execution, and undertaking of proposals. Will be used to determine the status and needs of additions, updates, or deletions to current software plans.

- project\_id: int, auto\_increment, unique, not NULL, PK
- title, VARCHAR(100)
- description: varchar(1000), not NULL

- delivery\_date: date
- proj\_status: varchar(100)
- Relationships
  - 1:M relationship between project and developer is implemented with project\_id as a FK inside of developer.
  - 1:M relationship between project and task is implemented with project\_id as a FK inside of task.
  - 1:M relationship between customer and project is implemented with customer\_id as a FK inside of projects.

Tasks: records details of assignments within a particular project. Will be used to pair tasks with developers that are assigned to them.

- task\_id: int, auto\_increment, unique, not NULL, PK
- description: varchar(1000), not NULL
- due date: date
- priority: int
- task\_status: varchar(100)
- Relationships
  - 1:M relationship between task and project is implemented with project\_id as a FK inside of task.
  - M:N relationship between developer and task is implemented with an interaction table "developer\_has\_task". developer\_id and task\_id are FKs within this table.

Certifications: records details of accreditations regarding developers' skills. Will be used to determine eligibility for project assignment based on a developer's experience.

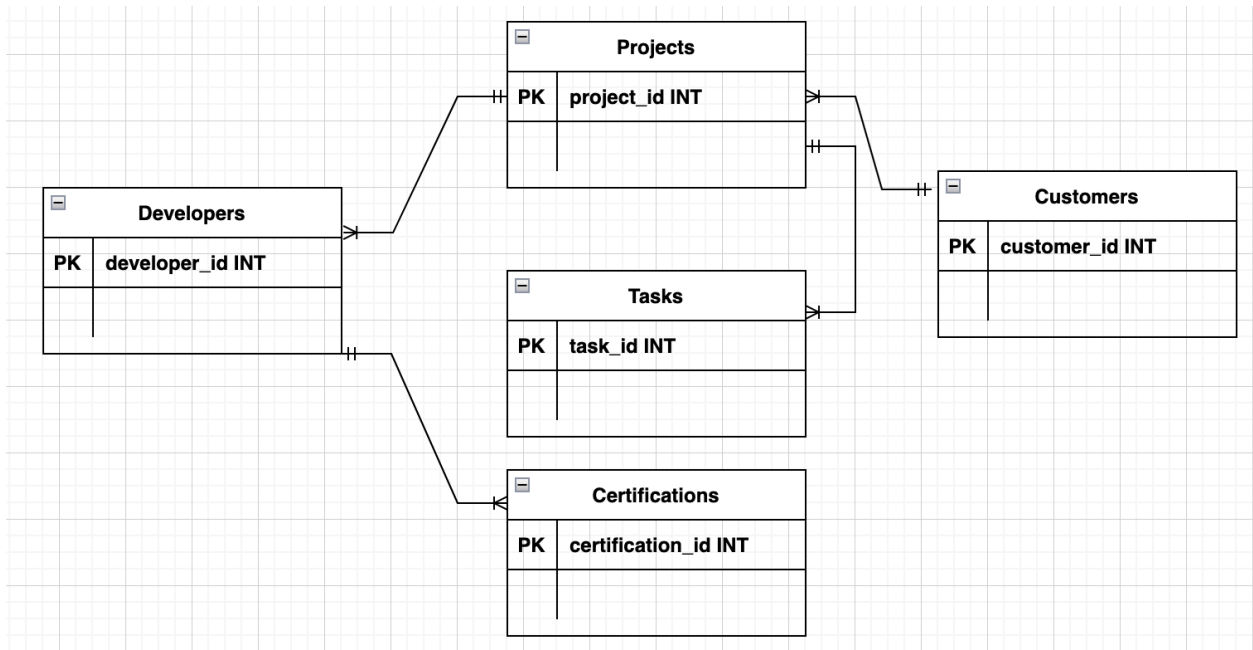
- certification\_id: int, auto\_increment, unique, not NULL, PK
- name: varchar(100), not NULL
- description: varchar(1000), not NULL
- duration: varchar(100)
- Relationships
  - M:N relationship between certification and developer is implemented with an interaction table "developer\_has\_certification". developer\_id and certification\_id are FKs within this table.

Customers: provides information about clients that have requested the completion of their respective projects.

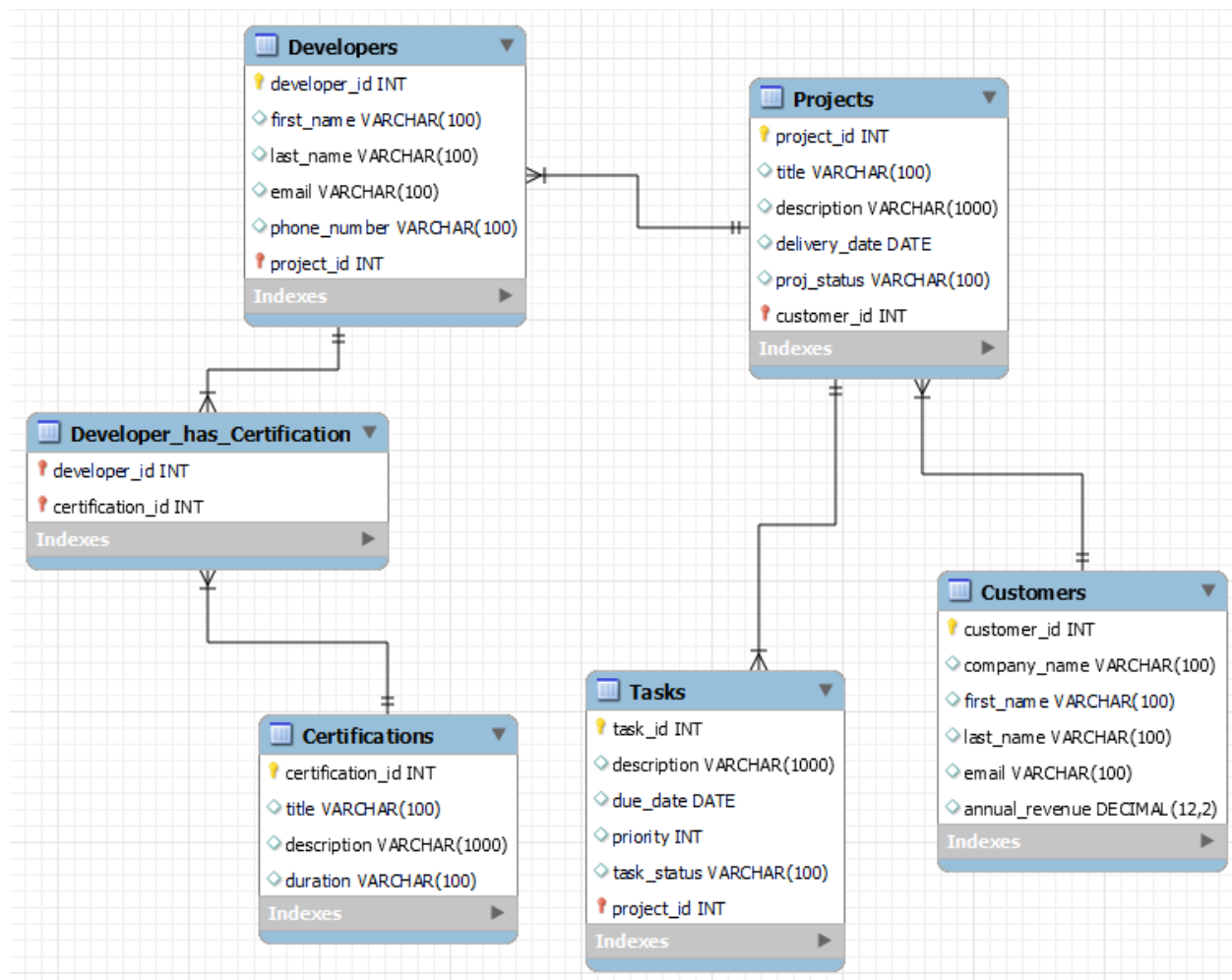
- customer\_id: int, auto\_increment, unique, not NULL, PK
- name: varchar(100), not NULL
- email: varchar(100), not NULL
- annual\_revenue: decimal(19, 2)
- Relationships
  - 1:M relationship between customer and project is implemented with customer\_id as a FK inside of project.

## ERD and Schema

Below are our ERD and Schema for the database used in this application.



Above is our database ERD.



Above is our database schema.

## Example Data:

### Sample Data for Developers:

Developer: These are examples of developers that are assigned to different projects. The developers are unique and can hold multiple certifications, and be assigned to multiple projects and tasks.

developer_id	first_name	last_name	email	phone_number	project_id
1	Mark	Brawn	1 @keyenergetics.com	1910023476	1
2	Kyle	Chang	2 @keyenergetics.com	1912413589	2
3	Miranda	Turani	3 @keyenergetics.com	1919078113	3
4	Jay	Singh	4 keyenergetics.com	1918129420	4
5	Serenity	Diaz	5 keyenergetics.com	1910015678	5

### Sample Data for Projects:

Project: These are examples of projects that are unique and assigned to developers. Each project has a delivery date for when it must be completed for a customer. Each project can also consist of many tasks.

project_id	title	description	delivery_date	proj_status	customer_id	task_id
1	Excavation Log	Archaeological mapping service requested by Carrer...	2023-10-02	In progress	4	6
2	Fingerprint Recognition Banking	Fingerprint account access restriction requested b...	2024-08-01	In progress	2	7
3	Grocery Budget Tracker	Grocery shopping budget app requested by Aria Apro...	2022-12-09	Completed	5	8
4	Weather Forecasting App	Meteorology tracking app requested by Meteorology ...	2025-09-02	On hold	3	9
5	Taco Time	Taco sale mapping app for regional taco deals requ...	2022-07-10	In progress	1	10

### Sample Data for Tasks:

Task: These are examples of tasks that are used to pair developers based on their certifications. Many developers can be working on one task.

task_id	description	due_date	priority	task_status	project_id
6	Build out framework for UI	2022-10-22	1	In progress	1
7	Set up backend	2022-12-25	2	On hold	4
8	Create database schema	2022-11-20	3	In progress	3
9	Outline project purpose	2022-10-15	1	Completed	2
10	Connect with stakeholders	2022-09-15	1	Completed	5

### Sample Data for Certifications:

Certification: These are examples of certifications that are unique, and are used to determine project eligibility when developers are considered based on their qualifications. The certifications can be held by many developers.

certification_id	title	description	duration
1	Certified Information Systems Security Professiona...	Required to work on government projects.	3 years
2	Certified Ethical Hacker (CEH)	Required for tech lead position.	3 years
3	AWS Certified Solutions Architect	Required for cloud application development	3 years

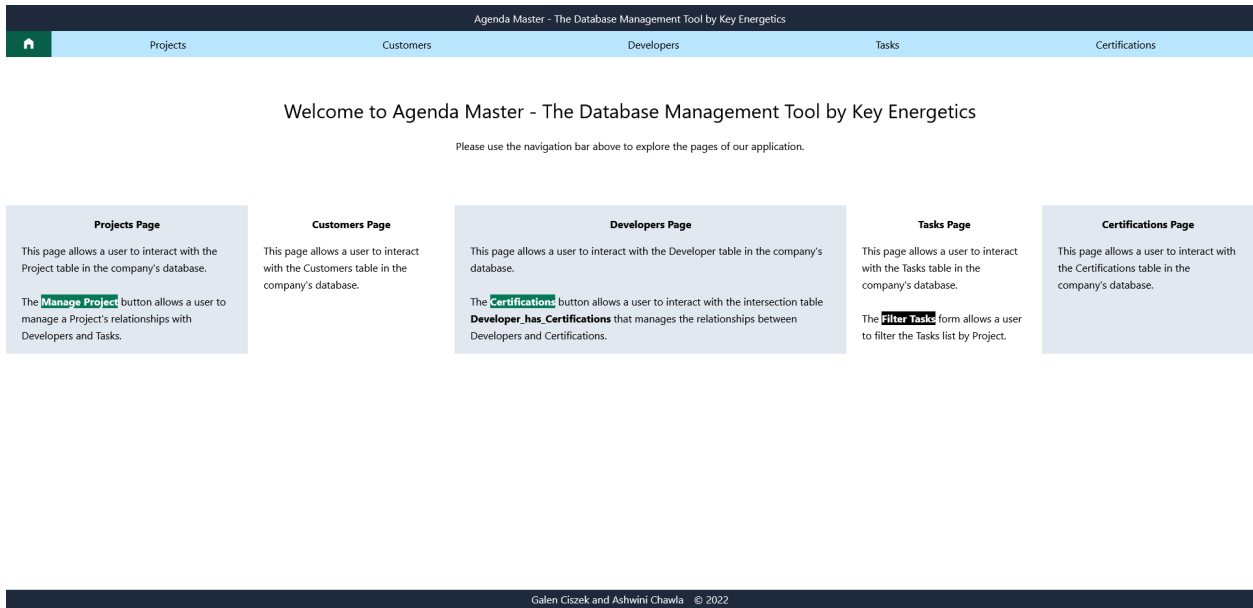
### Sample Data for Customers:

Customer: These are examples of customers that have reached out to the company to get their projects completed by the delivery dates. The customers are unique entities that can request multiple projects to reach completion.

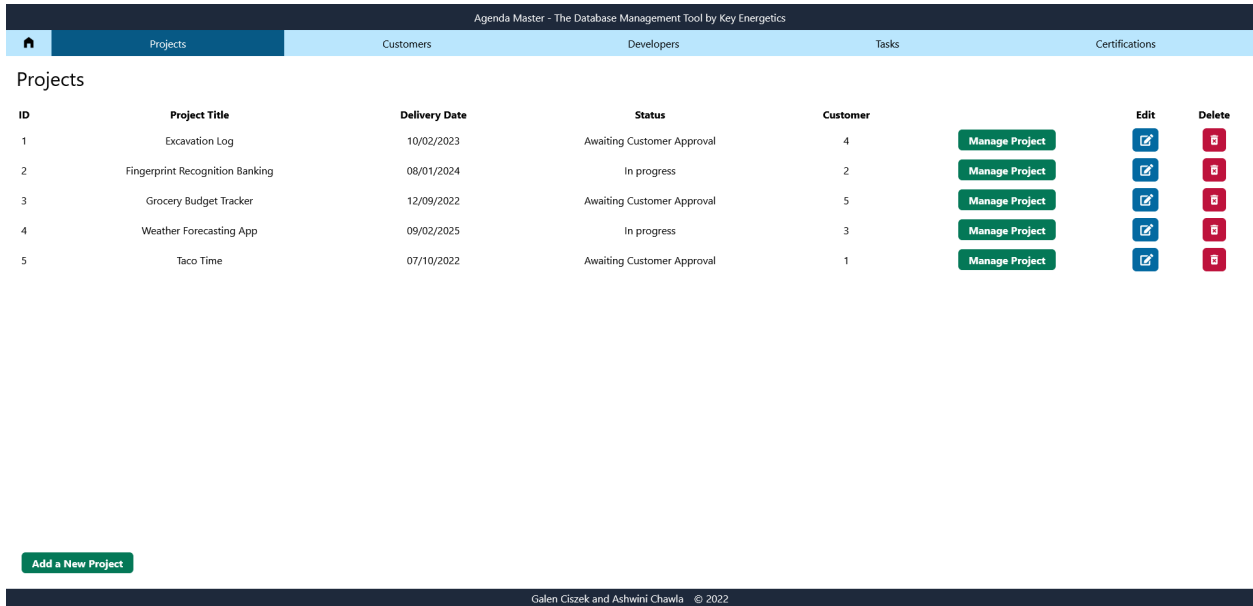
customer_id	company_name	first_name	last_name	email	annual_revenue
1	Carrera Terra	John	Carrera	jcarrera@carreraterra.com	8200000.00
2	Scoutain Bank	Mariah	Scoutain	mscoutain@scoutainbank.com	590200000.00
3	Aria Apron	Jelena	Ariamos	jariamos@ariaapron.com	100000.00
4	Meteorology Mobile	Kylan	Mirani	kmirani@meteorologymobile.com	7540000.00
5	Taco Time	Tyrell	Richards	trichards@tacotime.com	1800000.00

UI Screenshots with Informative Titles

Welcome page - Gives descriptions of the other pages and their functions.



Projects page - Displays the Project table, has edit and delete functions, links to add function and Manage Project page which displays other relationships.





## Add a Project page - Allows user to add a Project.

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Projects

Customers

Developers

Tasks

Certifications

Add a Project

Title

Excavation Log

Description

Archaeological mapping service requested by Carrera Terra

Delivery Date

10 / 02 / 2023

Project Status

-

Customer ID

-

Reset

Add

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## Manage Project page - Allows user to add Task.

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Projects

Customers

Developers

Tasks

Certifications



Excavation Log

Awaiting Customer Approval

Archaeological mapping service requested by Carrera Terra.

Due on: October 02, 2023

Tasks

Description	Due Date	Priority	Status	Edit	Delete
Build out framework for UI	12/05/2022	1			

Add a Task

Developers

ID	First Name	Last Name	Email	Phone Number
1	Mark	Brawn	mbrawn@keyenergetics.com	1910023476

Developer Roster

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Edit project page - Allows user to edit Project entity.

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Projects

Customers

Developers

Tasks

Certifications

Edit Project Details

Title

Description

Delivery Date

Customer ID

Existing Information

Excavation Log

Archaeological mapping service requested by Carrera Terra.

2023-10-02T07:00:00.000Z

4

Back

Title

Description

Delivery Date

Project Status

Customer ID

Excavation Log

Archaeological mapping service requested by Carrera Terra.

mm / dd / yyyy

-

Meteorology Mobile

Reset

Update

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Developer Roster page - Allows user to manage Developer relationships with Project.

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Projects

Customers

Developers

Tasks

Certifications

Developer

RosterProject 1 - Excavation Log

Assigned to Project

Not Assigned to Project

ID

First Name

Last Name

Remove

1

Mark

Brawn

>

Add

<

<

<

<

ID

First Name

Last Name

2

Kyle

Chang

3

Miranda

Turani

4

Jay

Singh

5

Serenity

Diaz

Back

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**Customers page - Displays the Customers table, has edit and delete functions, links to add function.**

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[Home](#)

[Projects](#)

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[Developers](#)

[Tasks](#)

[Certifications](#)

Customers

ID	Company	First Name	Last Name	Email	Annual Revenue	Edit	Delete
1	Carrera Terra	John	Carrera	jcarrera@carreraterra.com	8200000	<a href="#">Edit</a>	<a href="#">Delete</a>
2	Scoutain Bank	Mariah	Scoutain	mscoutain@scoutainbank.com	590200000	<a href="#">Edit</a>	<a href="#">Delete</a>
3	Aria Apron	Jelena	Ariamos	jariamos@ariaapron.com	100000	<a href="#">Edit</a>	<a href="#">Delete</a>
4	Meteorology Mobile	Kylan	Mirani	kmirani@meteorologymobile.com	7540000	<a href="#">Edit</a>	<a href="#">Delete</a>
5	Taco Time	Tyrell	Richards	trichards@tacotime.com	1800000	<a href="#">Edit</a>	<a href="#">Delete</a>

[Add a New Customer](#)

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**Add a customer page - Allows user to add a Customer entity.**

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[Developers](#)

[Tasks](#)

[Certifications](#)

Add a Customer

Company

Fake Business

First Name

Galen

Last Name

Ciszek

Email

ciszekg@oregonstate.edu

Annual Revenue

10000000

Reset

Add

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Edit customer page - Allows a user to edit a Customer entity

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Projects

Customers

Developers

Tasks

Certifications

Edit Customer Details

Existing Information

Company Name

First Name

Last Name

Email

Annual Revenue

Carrera Terra

John

Carrera

jcarrera@carreraterra.com

\$8200000

Back

New values

Company Name

First Name

Last Name

Email

Annual Revenue

Reset

Update

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Developers page - Displays the Developers table, has edit and delete functions, links to add function.

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Projects

Customers

Developers

Tasks

Certifications

Developers

ID	First Name	Last Name	Email	Phone Number	Certifications	Edit	Delete
1	Mark	Brawn	mbrawn@keyenergetics.com	1910023476	Certifications		
2	Kyle	Chang	kchang@keyenergetics.com	1912413589	Certifications		
3	Miranda	Turani	mturani@keyenergetics.com	1919078113	Certifications		
4	Jay	Singh	jsingh@keyenergetics.com	1918129420	Certifications		
5	Serenity	Diaz	sdiazi@keyenergetics.com	1910015678	Certifications		

Add a New Developer

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## Add Developer page - Allows a user to add a Developer entity

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Projects

Customers

Developers

Tasks

Certifications

Add a Developer

First Name

Mark

Last Name

Brawn

Email

mbrawn@keyenergetics.com

Phone Number

1910023476

Project ID

-

Reset

Add

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## Developer's Certification page - Allows a user to award or remove Certification relationships from a Developer

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Projects

Customers

Developers

Tasks

Certifications

Certifications Held

Developer's Certifications Mark Brawn

Certifications Not Held

ID	Title	Remove	Award	ID	Title
1	Certified Information Systems Security Professional	➡	⬅	2	Certified Ethical Hacker (CEH)
			⬅	3	AWS Certified Solutions Architect

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## Edit Developer page - Allows a user to edit a Developer entity

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[Home](#)[Projects](#)[Customers](#)[Developers](#)[Tasks](#)[Certifications](#)

Edit Developer Details

Existing Information

First Name

Last Name

Email

Phone Number

Mark

Brawn

mbrawn@keyenergetics.com

1910023476

New values

First Name

Last Name

Email

Phone Number

Mark

Brawn

mbrawn@keyenergetics.com

1910023476

Back

Reset

Update

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## Tasks page - Displays the Tasks page, has edit and delete functions, links to add function. This page also includes a filter feature for Tasks associated with specific projects.

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[Home](#)[Projects](#)[Customers](#)[Developers](#)[Tasks](#)[Certifications](#)

All Tasks

ID	Description	Due Date	Priority	Status	Project	Edit	Delete
1	Build out framework for UI	2022/10/22	1	In progress	1		
2	Set up backend	2022/12/25	2	Awaiting Approval	4		
3	Create database schema	2022/11/20	3	In progress	3		
4	Outline project purpose	2022/10/15	1	Awaiting Approval	2		
5	Connect with stakeholders	2022/09/15	1	In progress	5		

Add a New Task

Filter Tasks

Project

-

Reset

Filter

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## All Tasks page (filtered for Project 1) - Example of filtering feature on Tasks page.

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Home

Projects



Customers

Developers

Tasks

Certifications

All Tasks

ID	Description	Due Date	Priority	Status	Project	Edit	Delete
1	Build out framework for UI	2022/10/22	1	In progress	1		

Add a New Task

Filter Tasks

Project: 

Excavation Log

Reset

Filter

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## Add Task page - Allows user to add a Task entity

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Home

Projects

Customers

Developers

Tasks

Certifications

Add a Task

Description

Due Date

mm / dd / yyyy

Priority

2

Status

In-Progress

Project

-

Reset

Add

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Edit Task page - Allows user to edit a Task entity

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Projects

Customers

Developers

Tasks

Certifications

Edit Task Details

Existing Information

Description

Build out framework for UI

Due Date

2022-10-22T07:00:00.000Z

Priority

1

Task Status

In progress

Back

New values

Description

Build out framework for UI

Due Date

mm / dd / yyyy

Priority

1

Task Status

In-Progress

Reset

Update

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Certifications page - Displays the Certifications table, has edit and delete functions, and links to add function.

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Projects

Customers

Developers

Tasks

Certifications

Certifications

Title	Description	Duration	Edit	Delete
Certified Information Systems Security Professional	Required to work on government projects.	3 years		
Certified Ethical Hacker (CEH)	Required for tech lead position.	3 years		
AWS Certified Solutions Architect	Required for cloud application development	3 years		

Add a New Certification

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## Add Certification page - allows user to add Certification entity

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[Home](#)[Projects](#)[Customers](#)[Developers](#)[Tasks](#)[Certifications](#)

Add a Certification

Title

Certified Information Systems Security Professional

Description

Required to work on government projects.

Duration

3 years

Reset

Add

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## Edit Certification page - allows user to edit a Certification entity

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[Home](#)[Projects](#)[Customers](#)[Developers](#)[Tasks](#)[Certifications](#)

Edit Certification Details

Title

Description

Duration

Existing Information

Certified Information Systems Security Professional

Required to work on government projects.

3 years

Back

New values

Title

Certified Information Systems Security Professional

Description

Required to work on government projects.

Duration

3 years

Reset

Update

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