University of Canberra
Faculty of Science and Technology

Web Design and Programming (7175 & 6691)

Final Assignment

Submission date: **23:59 Saturday 14/10/2023** (**Week 11**)
Type: Individual assignment
Total marks: **40**
Submission: A .zip file that contains all files in your web project (including 2 database files). Submit this .zip file on the Canvas site of this unit.
Late submission: **5%** of the total marks (i.e., **2 marks**) per day. Information on how to apply for extension can be found in the unit outline available on the Canvas site of this unit.

Topic: Website for **Generative Artificial Intelligence (AI) Technology** to introduce generative AI tools, generative AI organisations, generative AI applications and AI jobs.

Tasks: Design and implement a **responsive** website for **Generative AI Technology** using the following:

1. **ASP.NET Core Web App (Model-View-Controller)** template in **Visual Studio 2022 (Community, Mac or Code)**. Language: **C#**.
2. **HTML5, CSS3, Bootstrap** and **media query** for **responsive web design**.
3. **JavaScript** and **jQuery** for interactive website.
4. **PyScript** for displaying table and diagrams from a .CSV data file using Python.

Requirements:

1. **Full-width layout web site**: the full-width layout takes up the entire space on the web page. **No** blank spaces on all sides and between HTML elements are seen.
2. **Web pages**:

- Five webpages in **Views/Home/** folder: **Index (home page)**, **GenAI**, **Jobs**, **GenAISites** and **Contact**.
- Five webpages In **Views/GenAIs/** folder: **Create**, **Details**, **Delete**, **Edit** and **Index**. You will create them using a model file named **GenAI** and **Entity Framework**. Note: you can use either Views/GenAIs/Index.cshtml or Views/Home/GenAISites.cshtml to design the Generative AI Websites page (some screenshots for this page are on pages 15, 16, 24, 25 and 26).
- **_Layout.cshtml**: This layout file provides HTML source of a web page, and common elements which are **head**, **menu** (**navigation**) and **footer** of this web site. This file is included in the ASP.NET Core Web App (Model-View-Controller) template.
- **Register** and **Login** pages: These files are included in **ASP.NET Core Web App (Model-View-Controller)**.

3. **Menu (Navigation) and Footer**: contain **hyperlinks** to **Index**, **Jobs**, **GenAISites** and **Contact** pages.
4. **Accessibility**:

- **Visitor (user without logging in)**: the 5 webpages in the **Views/Home/** folder, the **Register** page and **Login** page.
- **Member (logged-in user without role)**: the 5 webpages in the **Views/Home/** folder, the **Register** and **Login** pages, and the **Create** page in the **Views/GenAIs/** folder.
- **Admin (logged-in user with admin role)**: all web pages in this website.

5. **Responsive design**: **Bootstrap 5** is used for this web design. **Google Chrome web browser** with **inspect** is used for testing this responsive design.
6. **CSS**: all CSS properties and values must be stored in an **external** style sheet file (**style.css**). **Internal** CSS and **inline** styles are not allowed.
7. **JavaScript and jQuery** must be stored in an **external** file (**site.js**). **Internal** JavaScript and jQuery (between <script> and </script>) are not allowed.
8. **Handle all exceptions** that may occur at runtime (– 1 mark for each exception found). Make sure your web site provides the same display on the Google Chrome and MS Edge web browsers (– 2 marks if not the same).
9. **The GenAI model file (used with Entity Framework to create views, controller and database):**

```
public class GenAI
{
    public int Id { get; set; }
    public string GenAIName { get; set; }
    public string Summary { get; set; }
    public string ImageFilename { get; set; }
    public string AnchorLink { get; set; }
    public int Like { get; set; }
}
```

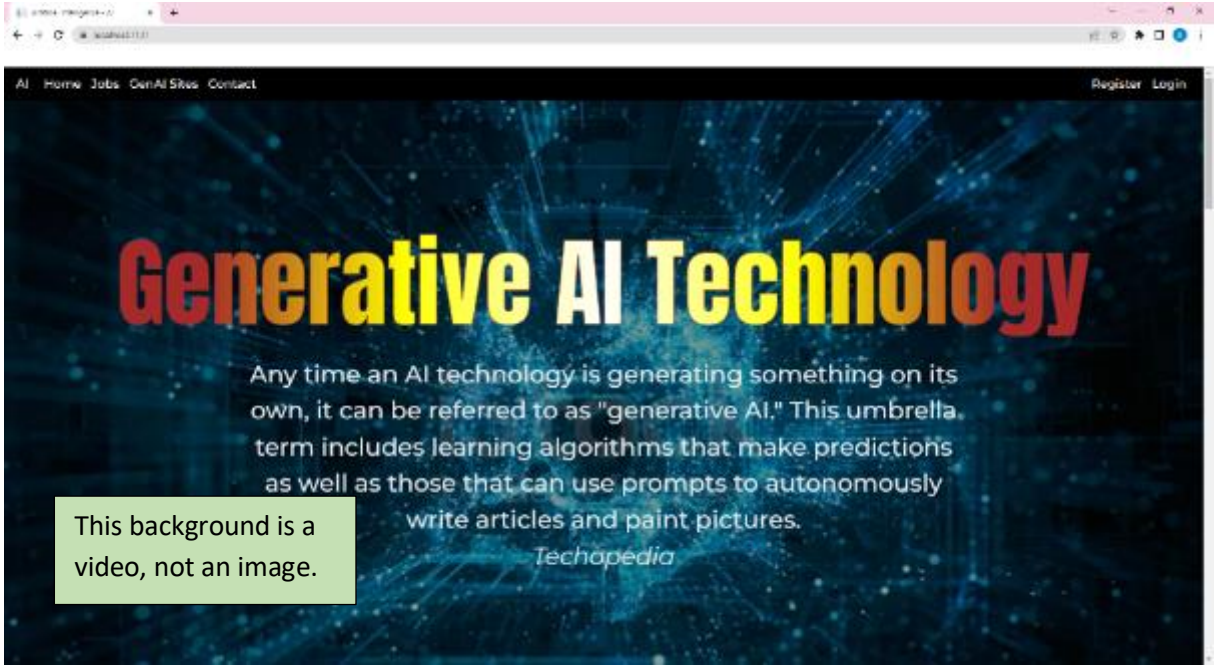
10. **Screenshots with more requirements**: **Your web design must be the same as you see in the screenshots below**.

Home page, GenAI page and Jobs page

Home page: to introduce Generative AI (GenAI) Technology, GenAI tools, GenAI organisations, GenAI applications and AI jobs.

- Bootstrap 5 and CSS3 media queries for responsive design,
- CSS3 **parallax scrolling** technique for fixed background images,
- CSS3 and JavaScript (and/or jQuery) for mouse over and mouse out events,
- JavaScript and/or jQuery to produce HTML5 elements, and
- HTML5 anchor hyperlinks.

Below are the layouts required for this page on Google Chrome browser with **Viewport width ≥ 768px**

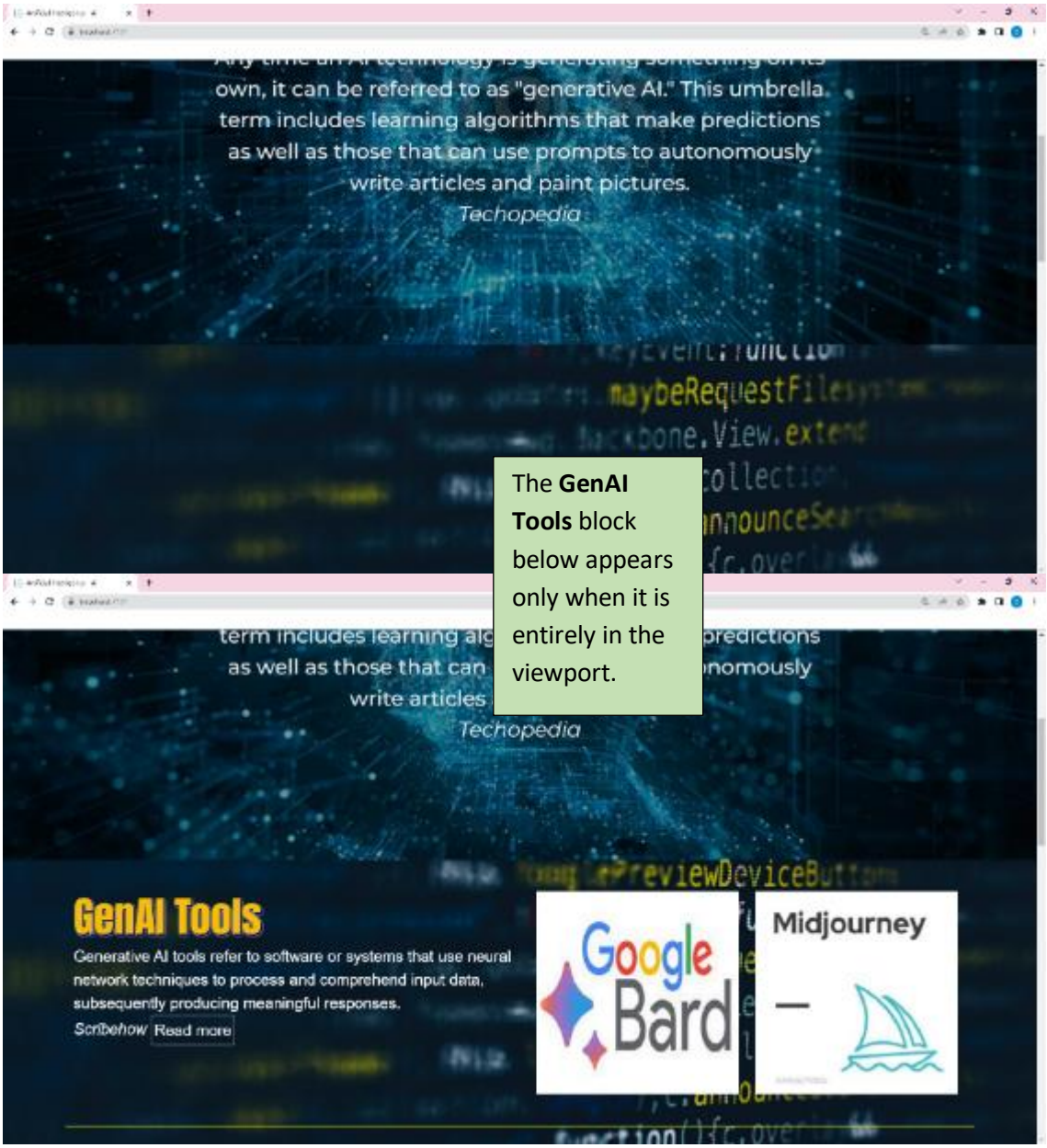


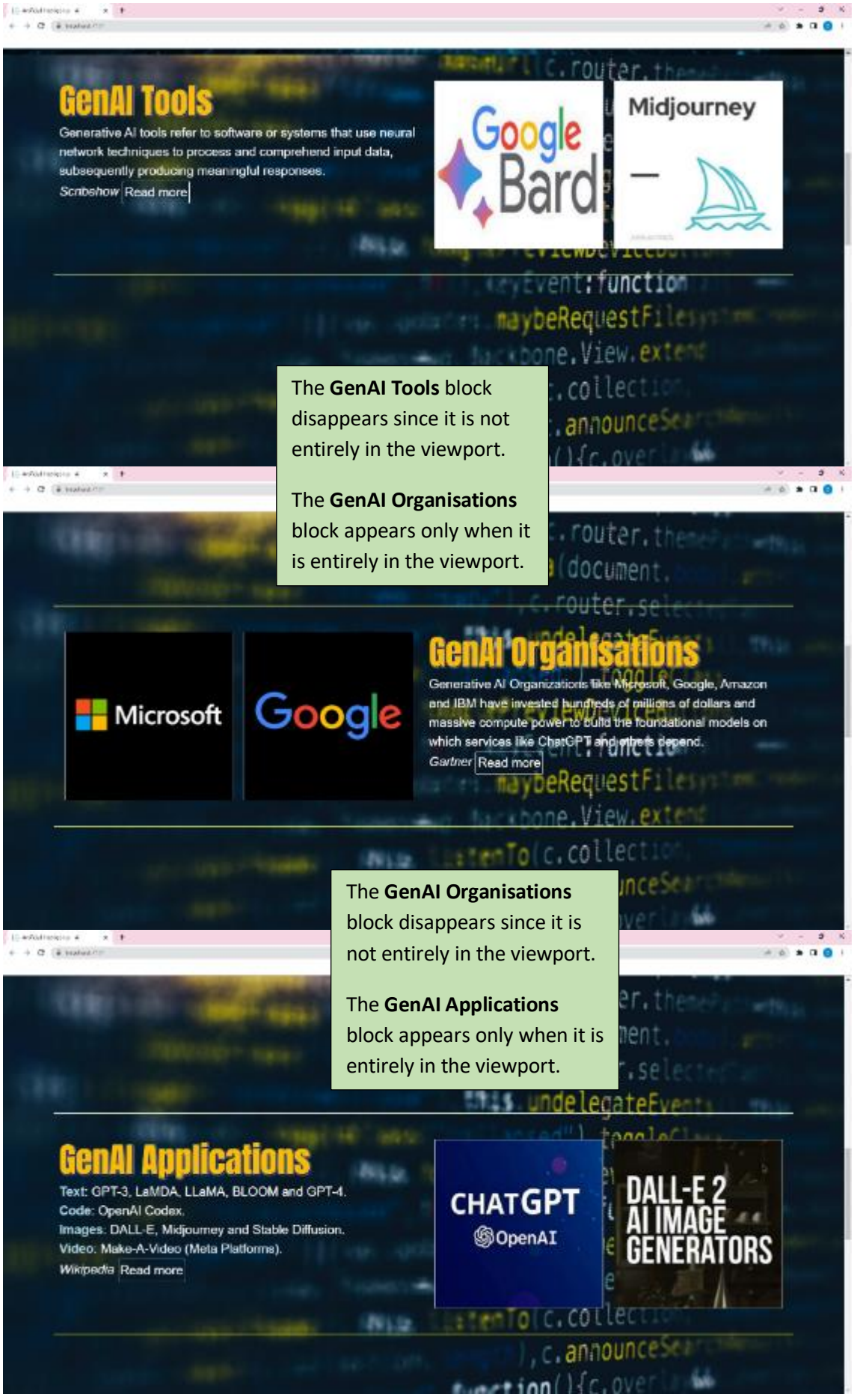
- No blank space around the menu and the web page.
- The links to this home page on the menu are **AI** and **Home**.
- The filename for this home page is **Index.cshtml** in the Views/Home/ folder.
- The background is a video clip with filename **video.mp4** (downloadable from Canvas) and HTML attributes: `loop muted autoplay="autoplay" preload="auto"`
- There is an HTML element on top of the video to make it darker with this CSS property `background-color: rgba(1,1,1,0.4);`
- Some CSS properties for the main heading **Generative AI Technology**: `font-family: 'Anton', sans-serif; background-image: linear-gradient(to right, brown, brown, yellow, white, yellow, brown, brown); -webkit-background-clip: text; -webkit-text-fill-color: transparent; -webkit-text-stroke-width: 1px; -webkit-text-stroke-color: brown; padding: 9vw 2vw 0vw 2vw; text-align: center; font-size: 8vw;`

- Some CSS properties for the text below the heading: `font-family: 'Montserrat', sans-serif; font-size: 2vw; text-align: center;`
- Use this text content:

```
Any time an AI technology is generating something on its own, it can be referred to as "generative AI." This umbrella term includes learning algorithms that make predictions as well as those that can use prompts to autonomously write articles and paint pictures.
Techopedia
```

- Scroll down and you see the webpage with background image:




GenAI Tools
Generative AI tools refer to software or systems that use neural network techniques to process and comprehend input data, subsequently producing meaningful responses.
Scribshow Read more
Google Bard
Midjourney
The GenAI Tools block disappears since it is not entirely in the viewport.
The GenAI Organisations block appears only when it is entirely in the viewport.
Microsoft
Google
GenAI Organisations
Generative AI Organizations like Microsoft, Google, Amazon and IBM have invested hundreds of millions of dollars and massive compute power to build the foundational models on which services like ChatGPT and others depend.
Gartner Read more
The GenAI Organisations block disappears since it is not entirely in the viewport.
The GenAI Applications block appears only when it is entirely in the viewport.
GenAI Applications
Text: GPT-3, LaMDA, LLaMA, BLOOM and GPT-4.
Code: OpenAI Codex.
Images: DALL-E, Midjourney and Stable Diffusion.
Video: Make-A-Video (Meta Platforms).
Wikipedia Read more
CHATGPT
OpenAI
DALL-E 2
AI IMAGE
GENERATORS

The **GenAI Applications** block disappears since it is not entirely in the viewport.

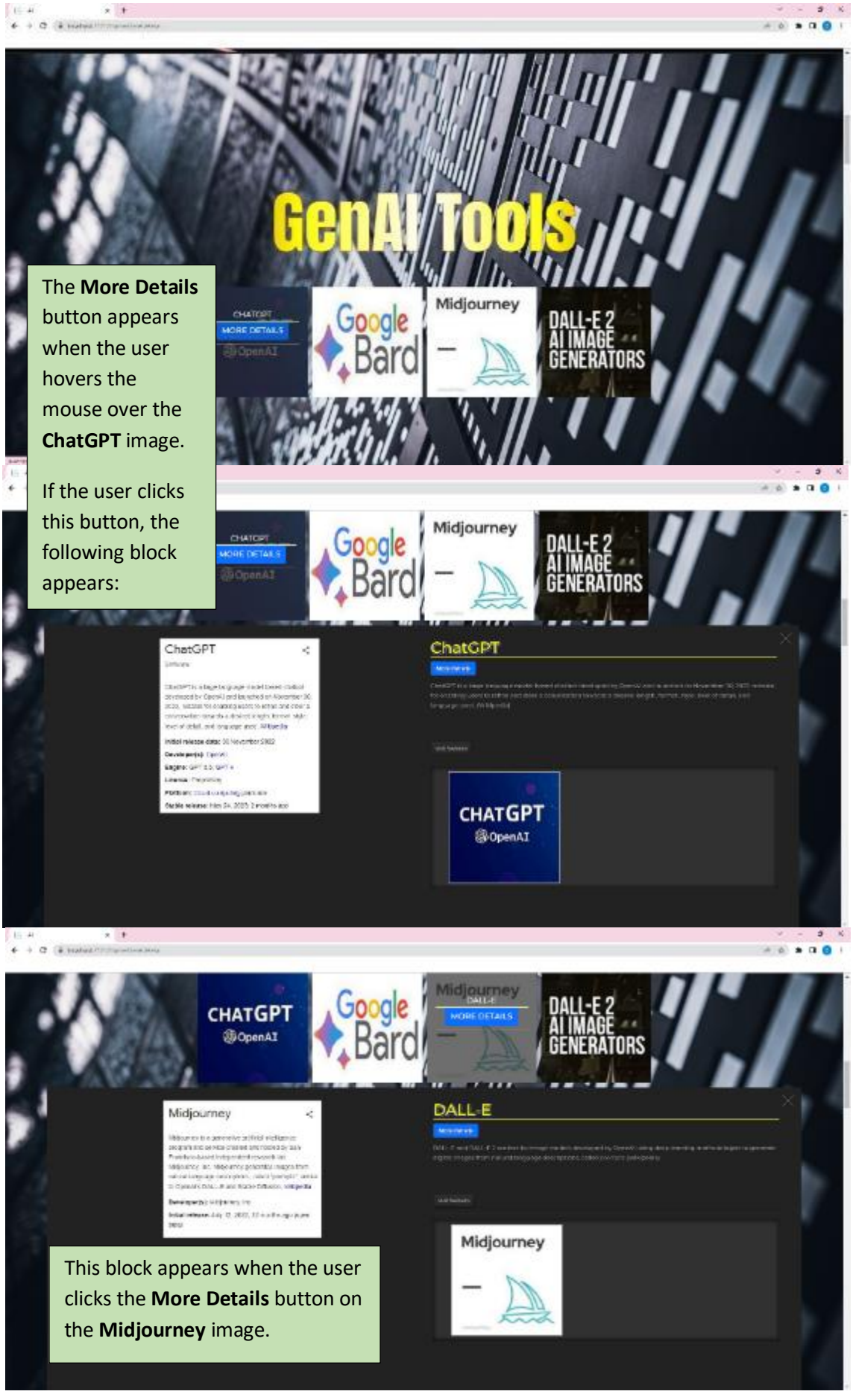
The **AI Jobs** block appears only when it is entirely in the viewport.

The **List of Generative AI Websites** block always appears. A logged-in user can add details for a new GenAI website.

- Use the following text for the 4 blocks above:

```
GenAI Tools
Generative AI tools refer to software or systems that use neural network techniques to
process and comprehend input data, subsequently producing meaningful responses.
Scribehow

GenAI Organisations
Generative AI Organizations like Microsoft, Google, Amazon and IBM have invested
hundreds of millions of dollars and massive compute power to build the foundational
models on which services like ChatGPT and others depend.
Gartner

GenAI Applications
Text: GPT-3, LaMDA, LLaMA, BLOOM and GPT-4.
Code: OpenAI Codex.
Images: DALL-E, Midjourney and Stable Diffusion.
Video: Make-A-Video (Meta Platforms).
Wikipedia

AI Jobs
The prime source for jobs and talents in AI, ML, Data Science and Big Data: Insights
AI-Jobs
Python source for tables and charts: Kaggle.

Link for Insights AI-Jobs: https://ai-jobs.net/
Link for Kaggle: https://www.kaggle.com/code/sowrabhghosh/data-science-salary-2020-22-
analysis
```

- If the user clicks **Read more** button on the **GenAI Tools** block, the user is redirected to the following block on the **GenAI** page:



The **More Details** button appears when the user hovers the mouse over the **ChatGPT** image.

If the user clicks this button, the following block appears:

This block appears when the user clicks the **More Details** button on the **Midjourney** image.

- Use the following text for the 4 blocks above:

  ChatGPT is a large language model-based chatbot developed by OpenAI and launched on November 30, 2022, notable for enabling users to refine and steer a conversation towards a desired length, format, style, level of detail, and language used. (Wikipedia)

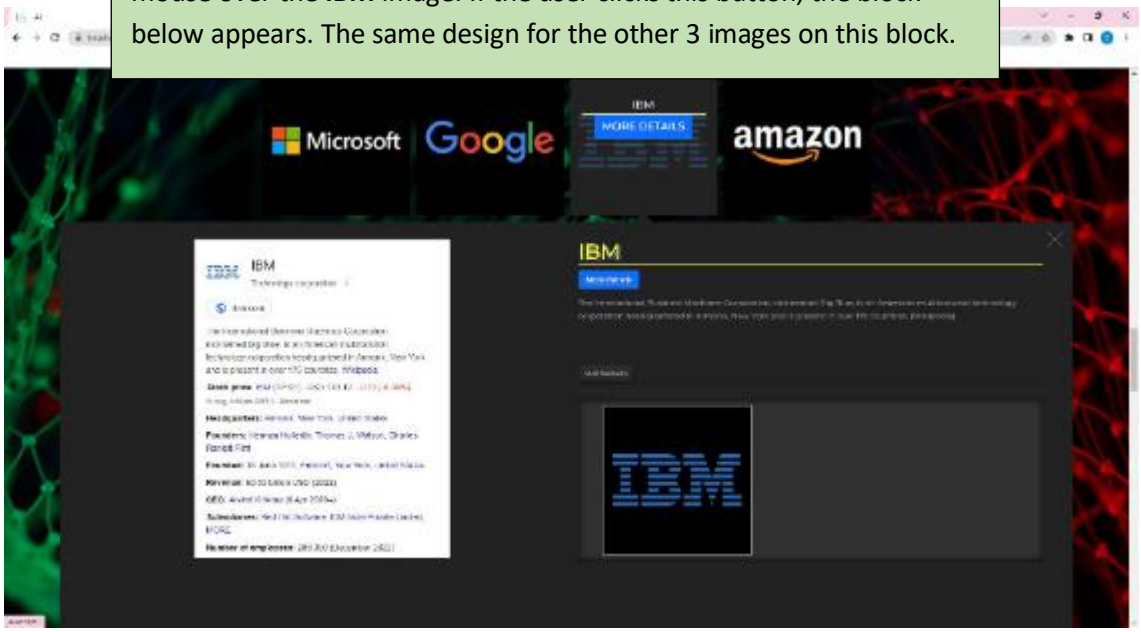
  Bard is a conversational generative artificial intelligence chatbot developed by Google, based initially on the LaMDA family of large language models and later the PaLM LLM. (Wikipedia)

  DALL-E and DALL-E 2 are text-to-image models developed by OpenAI using deep learning methodologies to generate digital images from natural language descriptions, called prompts (Wikipedia)

  Midjourney is a generative artificial intelligence program and service created and hosted by San Francisco-based independent research lab Midjourney, Inc. (Wikipedia)

- Back to the **Home** page, if the user clicks **Read more** button on the **GenAI Organisations** block, the user is redirected to the following block on the same **GenAI** page:

Similarly, the **More Details** button appears when the user hovers the mouse over the **IBM** image. If the user clicks this button, the block below appears. The same design for the other 3 images on this block.



- Use the following text for the 4 blocks above:

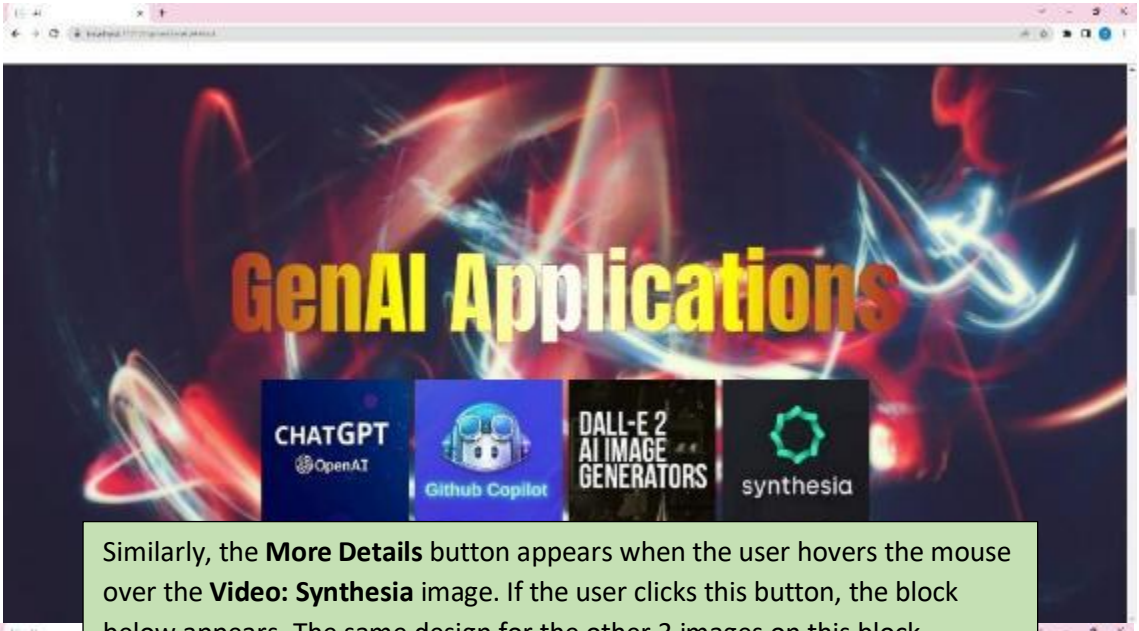
Microsoft Corporation is an American multinational technology corporation headquartered in Redmond, Washington. Microsofts best-known software products are the Windows line of operating systems, the Microsoft 365 suite of productivity applications, and the Internet Explorer and Edge web browsers. (Wikipedia)

Google LLC is an American multinational technology company focusing on artificial intelligence, online advertising, search engine technology, cloud computing, computer software, quantum computing, e-commerce, and consumer electronics. (Wikipedia)

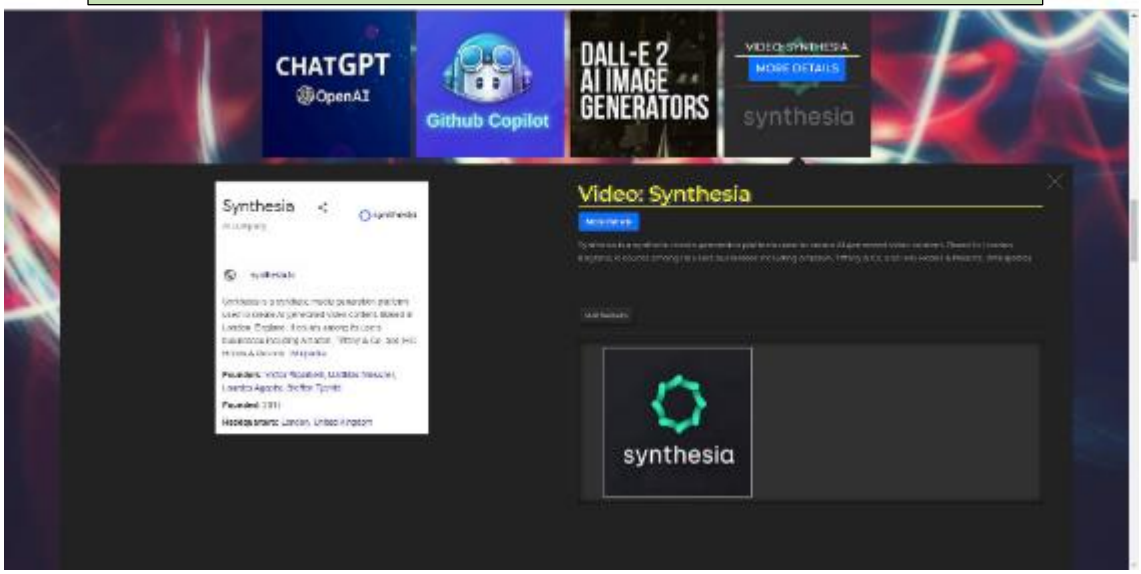
The International Business Machines Corporation, nicknamed Big Blue, is an American multinational technology corporation headquartered in Armonk, New York and is present in over 175 countries. (Wikipedia)

Amazon.com, Inc. is an American multinational technology company focusing on e-commerce, cloud computing, online advertising, digital streaming, and artificial intelligence. (Wikipedia)

- Back to the **Home** page, if the user clicks **Read more** button on the **GenAI Applications** block, the user is redirected to the following block on the same **GenAI** page:



Similarly, the **More Details** button appears when the user hovers the mouse over the **Video: Synthesia** image. If the user clicks this button, the block below appears. The same design for the other 3 images on this block.



- Use the following text for the 4 blocks above:

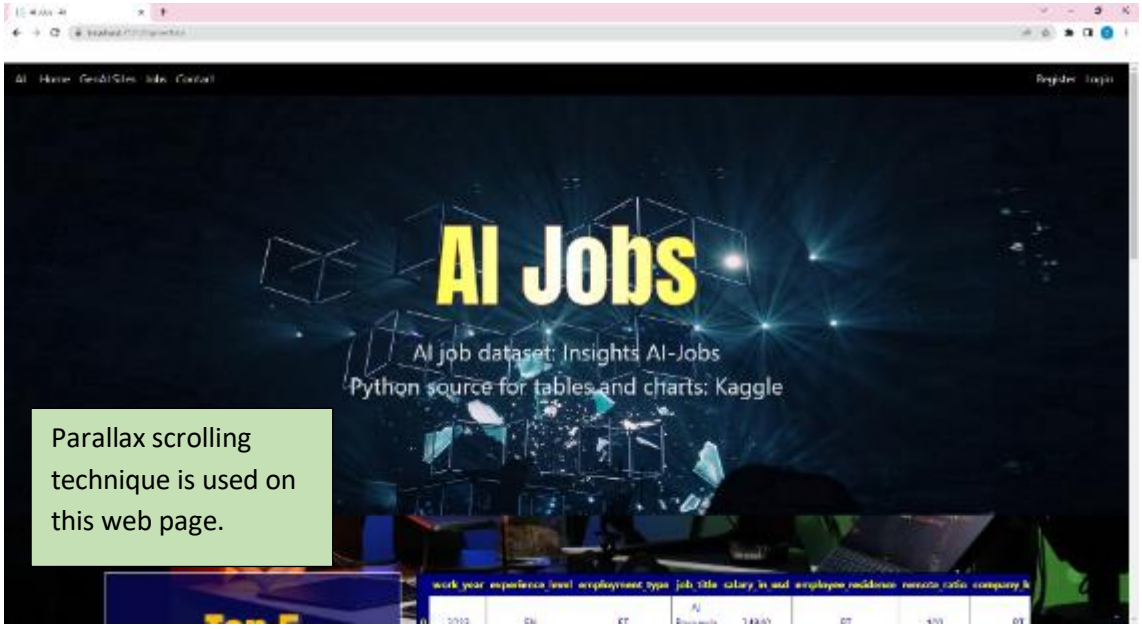
  Chat0047PT is a large language model-based chatbot developed by OpenAI and launched on November 30, 2022, notable for enabling users to refine and steer a conversation towards a desired length, format, style, level of detail, and language used. (Wikipedia)

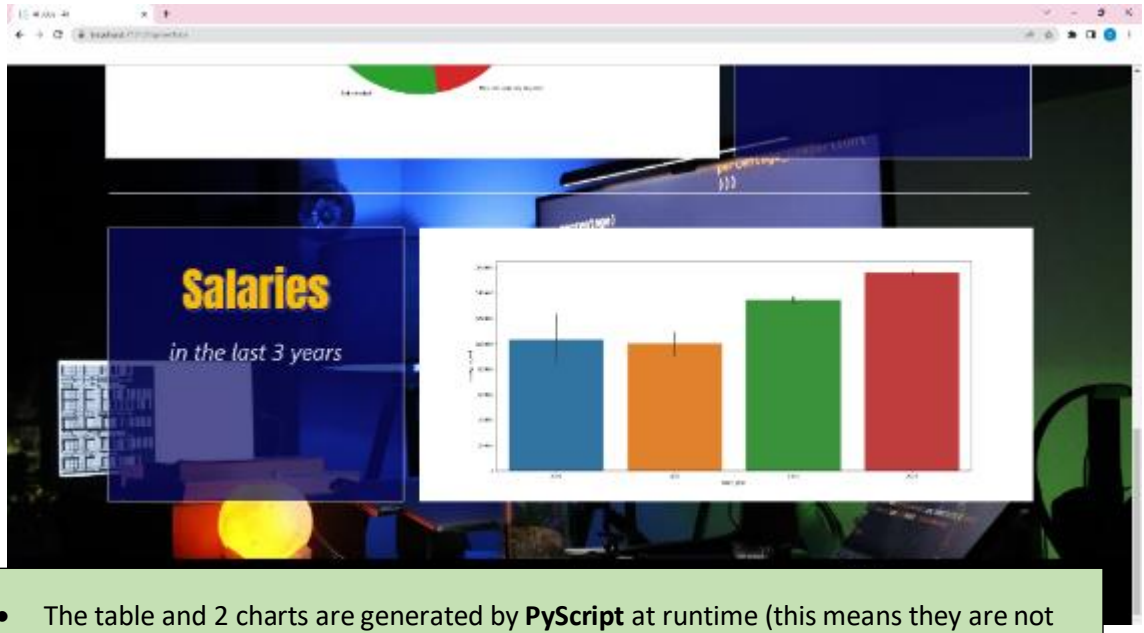
  GitHub Copilot is a cloud-based artificial intelligence tool developed by GitHub and OpenAI to assist users of Visual Studio Code, Visual Studio, Neovim, and JetBrains integrated development environments by autocompleting code. (Wikipedia)

  DALL-E and DALL-E 2 are text-to-image models developed by OpenAI using deep learning methodologies to generate digital images from natural language descriptions, called "prompts". DALL-E was revealed by OpenAI in a blog post in January 2021, and uses a version of GPT-3 modified to generate images. (Wikipedia)

  Synthesia is a synthetic media generation platform used to create AI generated video content. Based in London, England, it counts among its users businesses including Amazon, Tiffany & Co. and IHG Hotels & Resorts. (Wikipedia)

- Back to the **Home** page, if the user clicks **Read more** button on the **AI Jobs** block, the user is redirected to the **Jobs** page below. Note: you must use **PyScript** to produce the table and graphs on this page.





- The table and 2 charts are generated by **PyScript** at runtime (this means they are not static images). All the table and charts must be *responsive*.
- The CSV file **salaries2023.csv** for data is downloadable from Canvas

Contact page

Page for contact, about and copyright information: to present contact details, information about this website, copyright, and other useful information.

Below are the layouts required for this page on different devices.

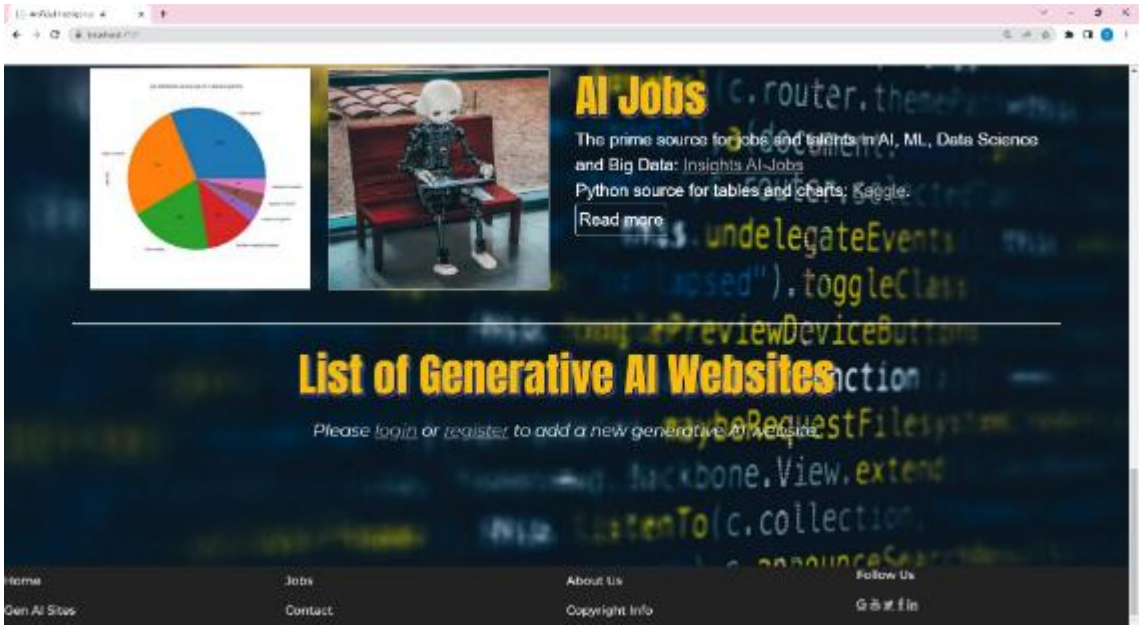
- The link to this page on the menu and footer is **Contact**.
- No blank space around the menu and the web page.
- The heading **Contact & About** has the same CSS properties as those on the **Home** page except the following CSS properties for stroke (text border) are **not** used: `-webkit-text-stroke-width: 1px; -webkit-text-stroke-color: brown;`.
- The background image and parallax scrolling are the same as those on the **Jobs** page.
- Use Bootstrap to produce the 3 columns for Contact Us, About Us and Copyright. See the screenshots below for tablet and mobile phone for more details.
- Content on this page:

```
Contact Us
This website was written by [your name]
To get in contact please email [link to your email address]

About Us
This website provides an introduction to Artificial Intelligence and was created as
partial fulfillment of the assessment requirements of Web Design and Programming at the
University of Canberra.
This site is built on the ASP.NET CORE framework and employs Bootstrap responsive design
techniques.

Copyright
All images used in this website were downloaded from Unsplash
The icons for the footer from fontawesome.
The Anton font used for headers from Google Fonts.
The AI jobs dataset from Insights.
The Python source from Kaggle
The Python web based on PyScript from Real Python.
```

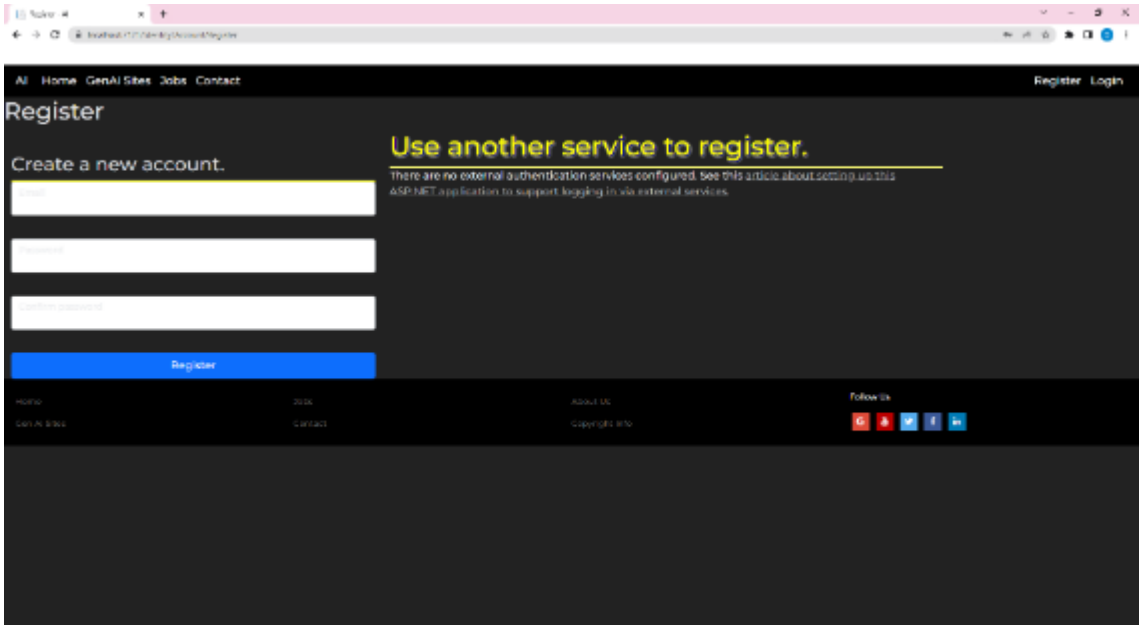
- Hyperlinks in the Copyright column for
  Unsplash: https://unsplash.com/
  fontawesome: https://fontawesome.com/
  Google fonts: https://fonts.google.com/
  Insights: https://ai-jobs.net/
  Kaggle: https://www.kaggle.com/code/sowrabhghosh/data-science-salary-2020-22-analysis
  Real Python: https://realpython.com/pyscript-python-in-browser/

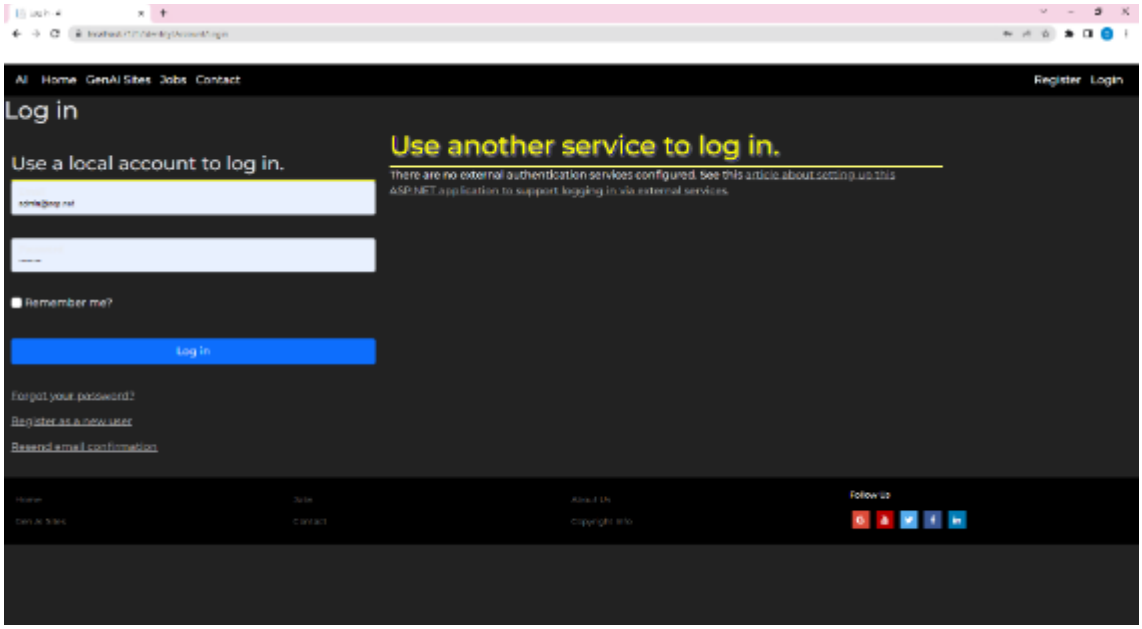
GenAI Sites page and Home page

- Back to the **Home** page and scroll down to the bottom. You will see the List of Generative AI Websites block.



- If the user clicks the **register** link or **login** link on this block (the same for **Register** or **Login** on the **menu**)





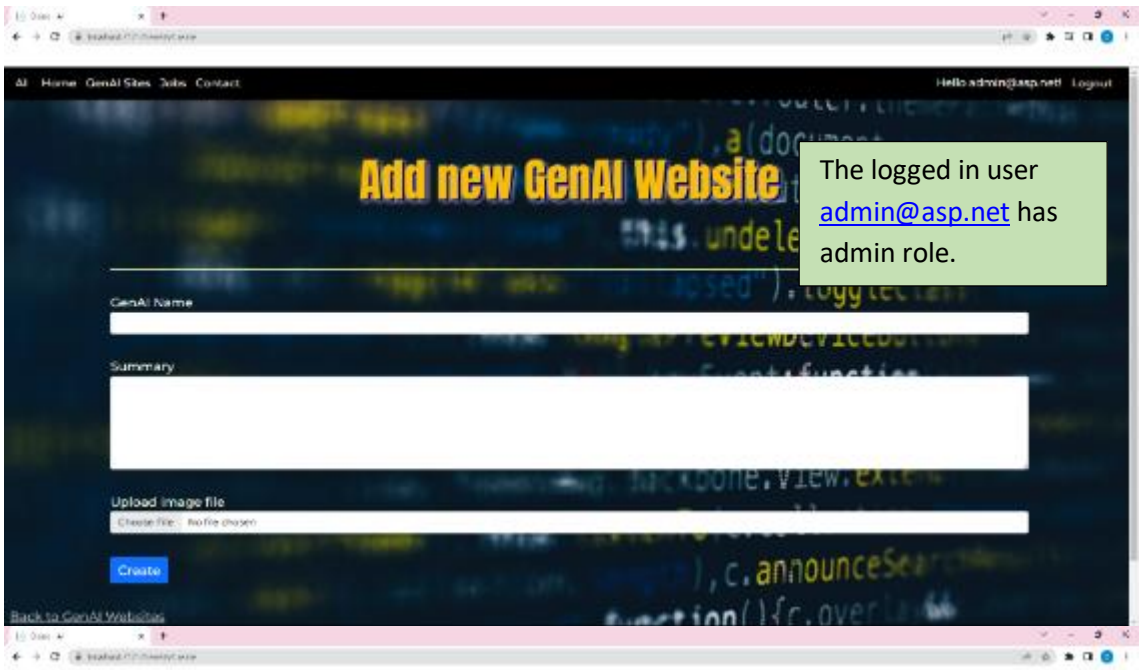
- After the user registered then logged in and back to the **Home** page, the text

  `Please login or register to add a new generative AI website.`

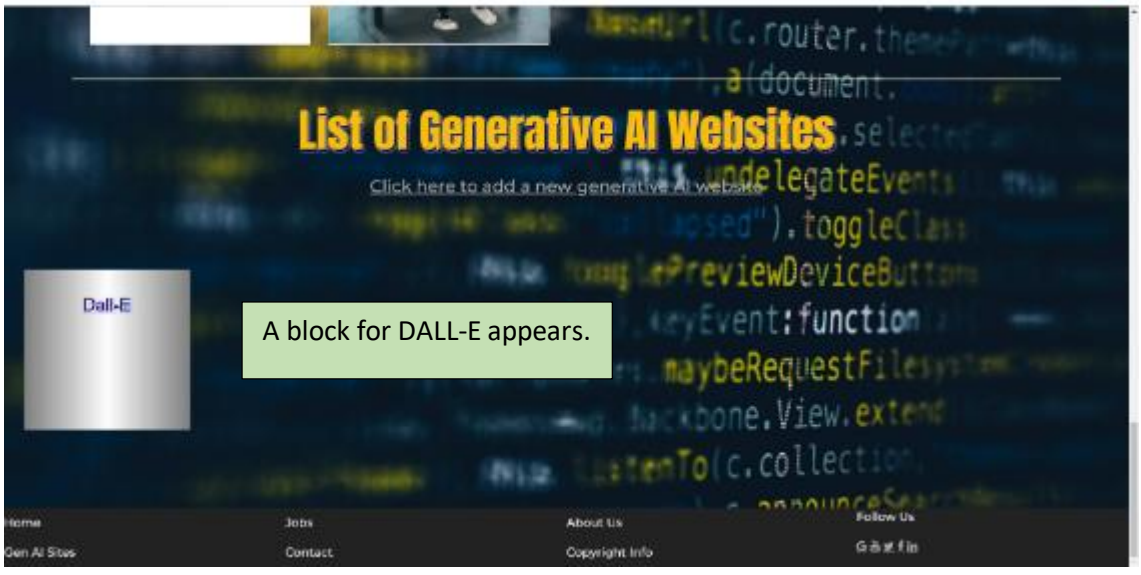
  is changed to:

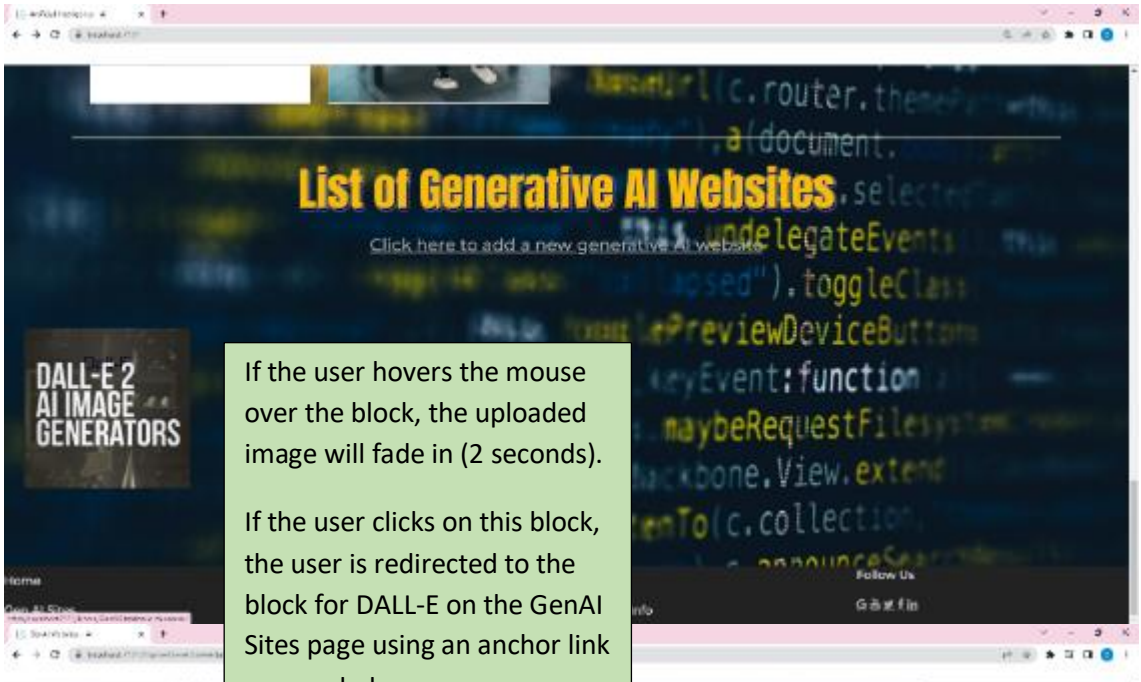
  `Click here to add a new generative AI website. Click here to add a new generative AI website.`

- The user clicks on that text and the **Create** page in the **Views/GenAIs/** folder is loaded:


Add new GenAI Website
The logged in user admin@asp.net has admin role.
GenAI Name
Summary
Upload image file
Create


Add new GenAI Website
The user enters details for DALL-E then clicks **Create**. All details are saved to the server database and the image is uploaded to a subfolder in the **wwwroot/images/** folder.
GenAI Name
Summary
Upload image file
Create


List of Generative AI Websites
Click here to add a new generative AI website
Dall-E
A block for DALL-E appears.

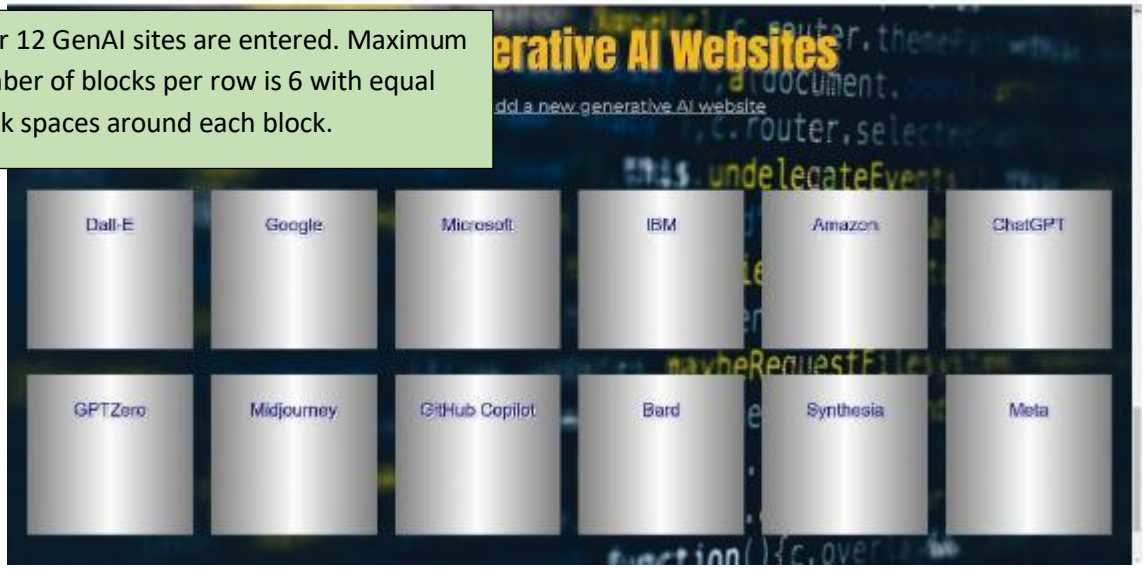


If the user hovers the mouse over the block, the uploaded image will fade in (2 seconds).

If the user clicks on this block, the user is redirected to the block for DALL-E on the GenAI Sites page using an anchor link as seen below.

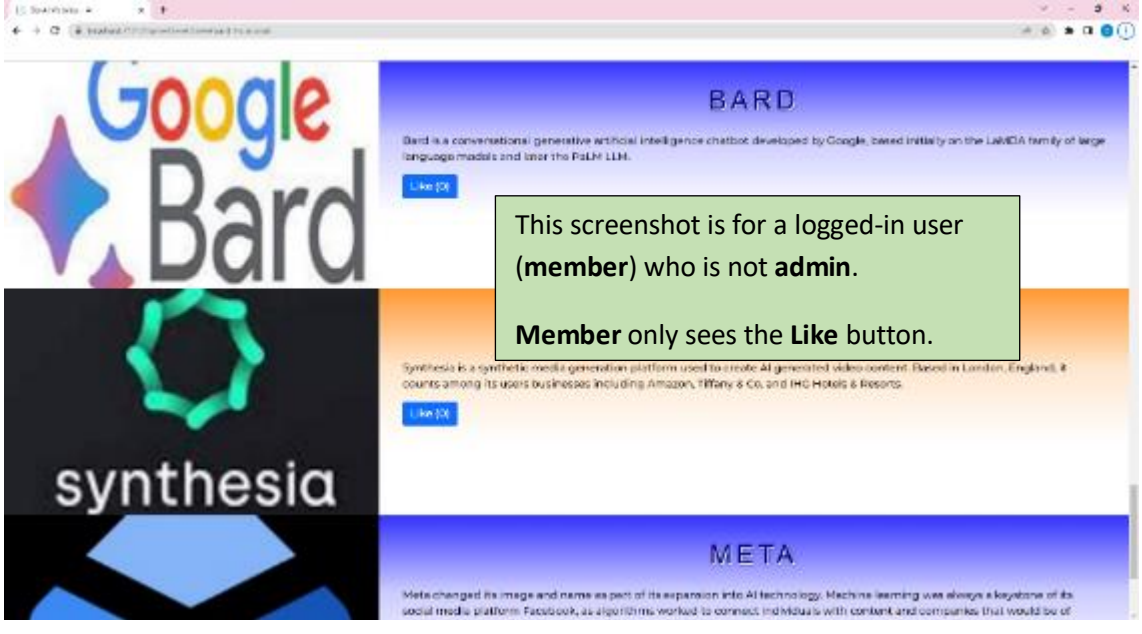
The **admin** can see three buttons Like, Edit and Delete.

After 12 GenAI sites are entered. Maximum number of blocks per row is 6 with equal blank spaces around each block.



The GenAI sites page after the user clicks on the **DALL-E** block on the **Home** page.

This is the **GenAI Sites** page after the user clicks on the **Bard** block on the **Home** page.



This screenshot is for a logged-in user (**member**) who is not **admin**.

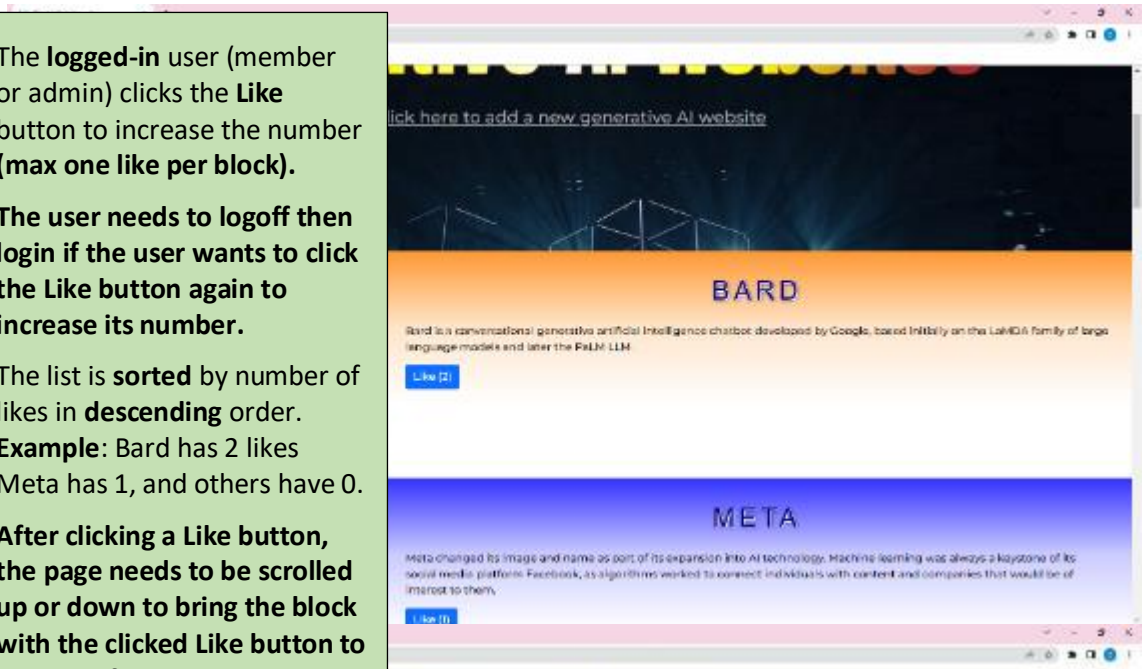
Member only sees the **Like** button.

The **logged-in** user (member or admin) clicks the **Like** button to increase the number **(max one like per block).**

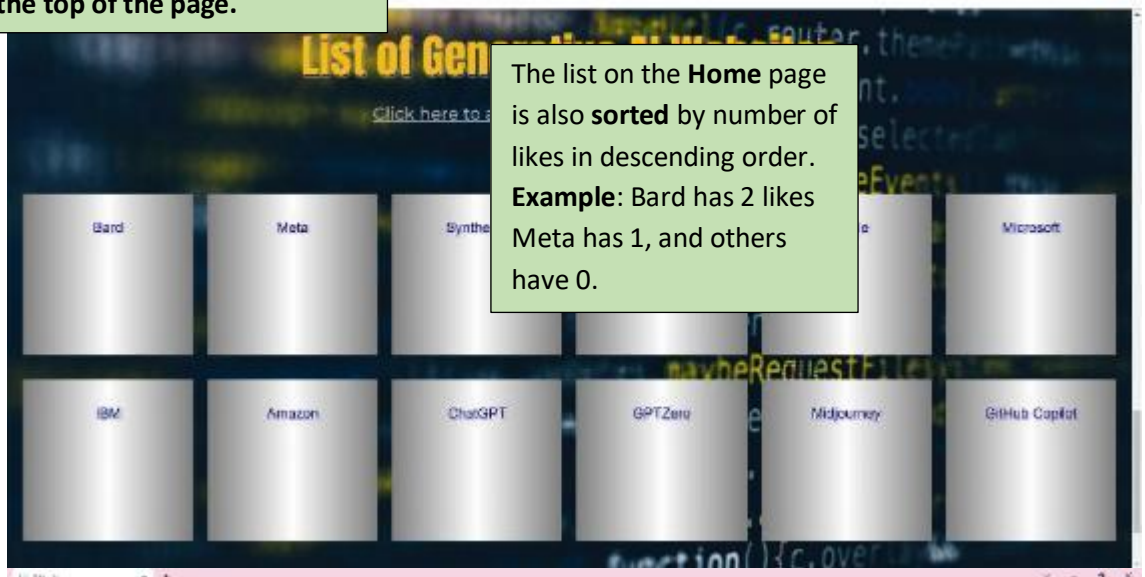
The user needs to logoff then login if the user wants to click the Like button again to increase its number.

The list is **sorted** by number of likes in **descending** order. **Example**: Bard has 2 likes Meta has 1, and others have 0.

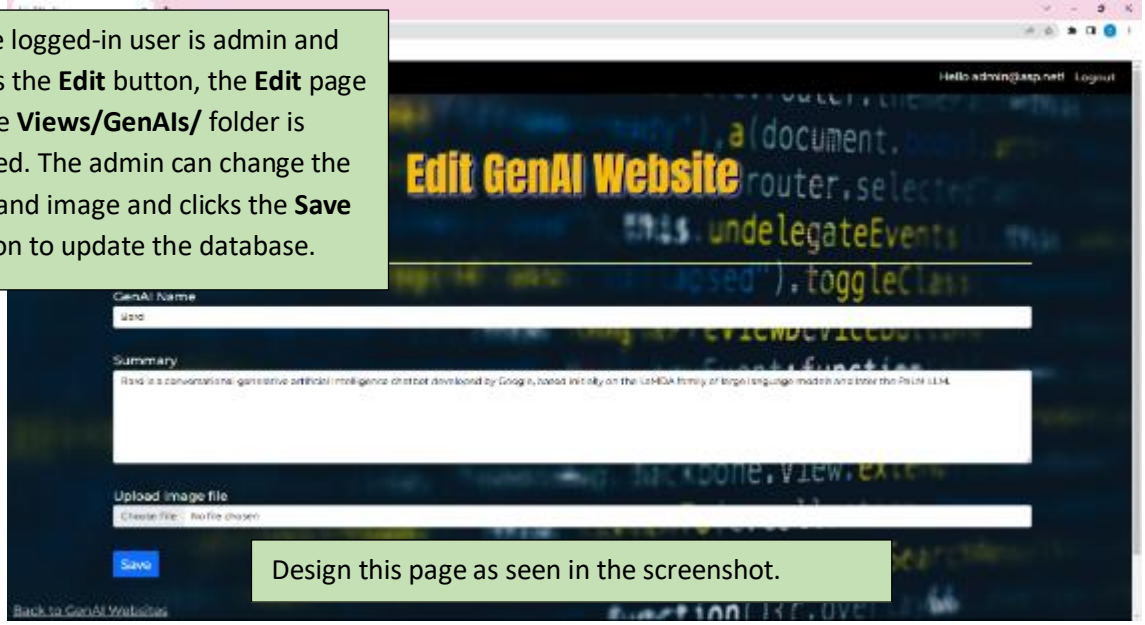
After clicking a Like button, the page needs to be scrolled up or down to bring the block with the clicked Like button to the top of the page.



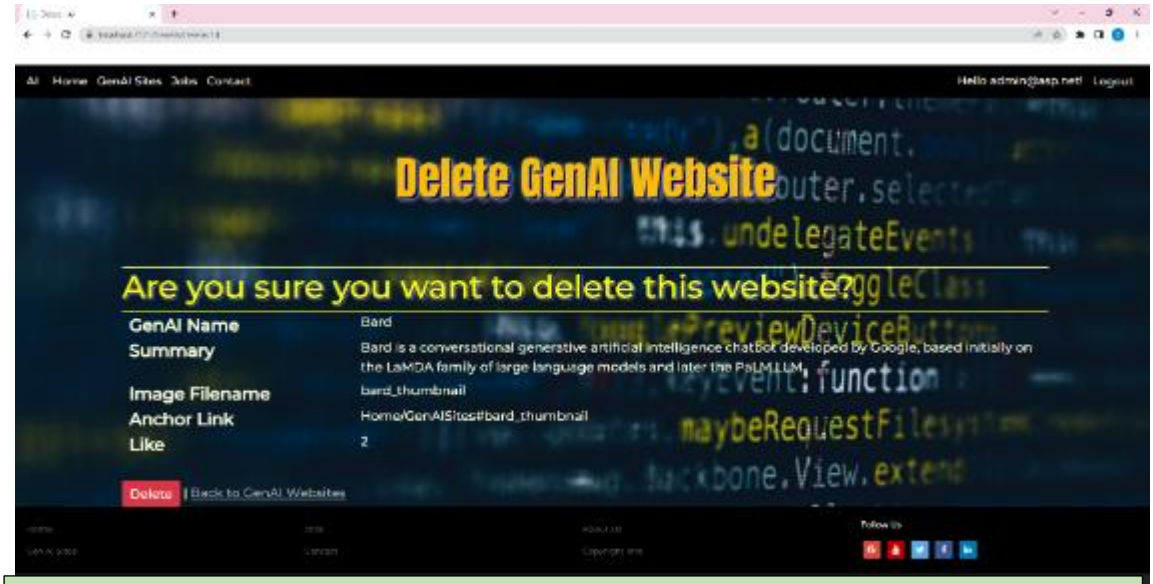
The list on the **Home** page is also **sorted** by number of likes in descending order. **Example**: Bard has 2 likes Meta has 1, and others have 0.



If the logged-in user is admin and clicks the **Edit** button, the **Edit** page in the **Views/GenAIs/** folder is loaded. The admin can change the text and image and clicks the **Save** button to update the database.



Design this page as seen in the screenshot.



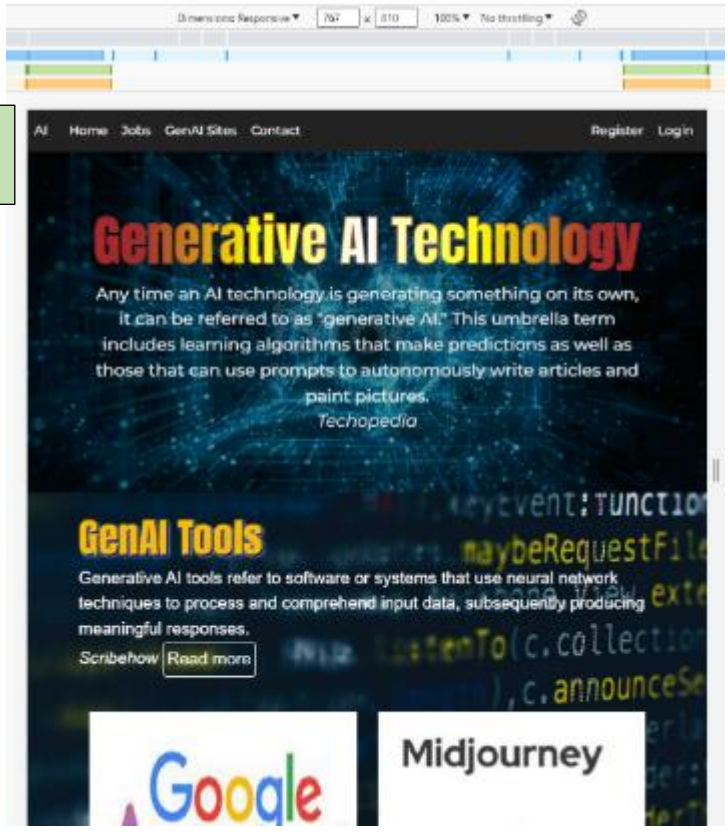
If the logged-in user is admin and clicks the **Delete** button, the **Delete** page in the **Views/GenAIs/** folder is loaded. ~~The admin can change the text and image and clicks the **Save** button to update the database.~~ Design this page as seen in the above screenshot.

Responsive Design

- All the screenshots you have seen above are for the devices with **viewport width ≥ 768px** (laptop or desktop)
- Below are screenshots for the devices that have smaller viewports.

HOME Page

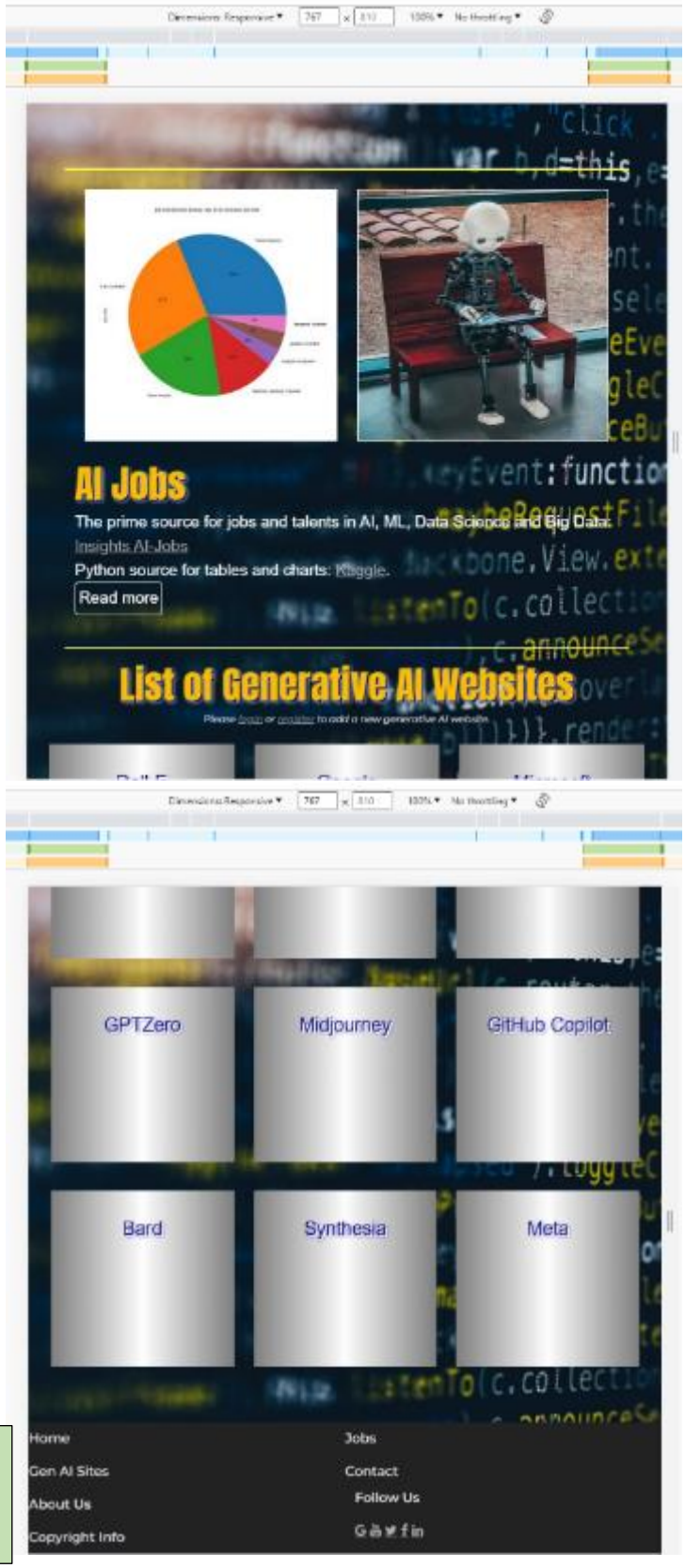
576px ≤ Viewport width < 768px



The menu has the same design.


Microsoft
Google
GenAI Organisations
Generative AI Organizations like Microsoft, Google, Amazon and IBM have invested hundreds of millions of dollars and massive compute power to build the foundational models on which services like ChatGPT and others depend.
Gartner
Read more


GenAI Applications
Text: GPT-3, LaMDA, LLaMA, BLOOM and GPT-4.
Code: OpenAI Codex.
Images: DALL-E, Midjourney and Stable Diffusion.
Video: Make-A-Video (Meta Platforms).
Wikipedia
Read more
CHATGPT
OpenAI
DALL-E 2
AI IMAGE
GENERATORS



The footer changes its design.

HOME Page

Viewport width < 576px

The **menu** changes its design.


Dimensions: Responsive
575
736
100%
No throttling
GenAI Applications
Text: GPT-3, LaMDA, LLaMA, BLOOM and GPT-4.
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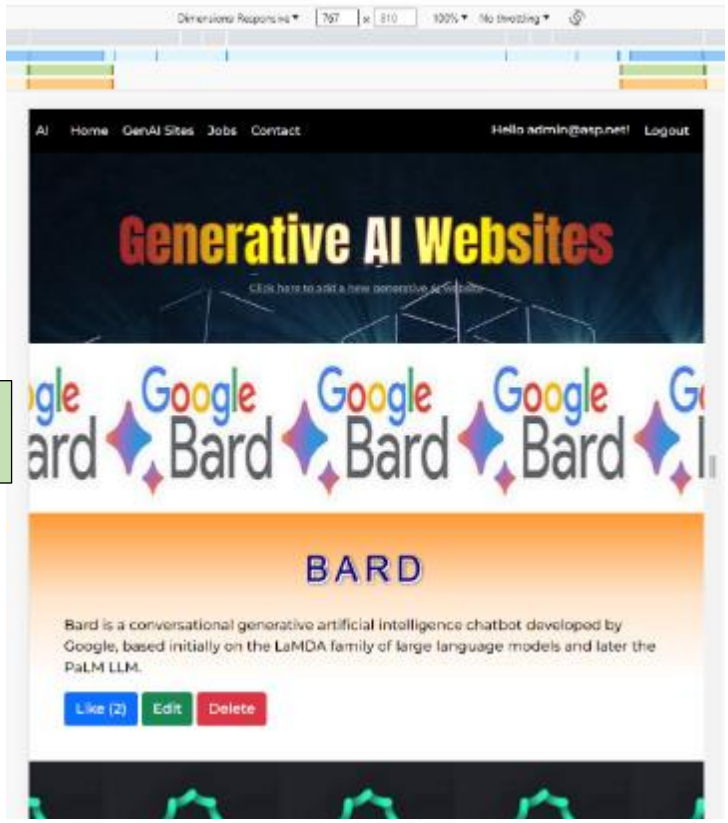
No throttling
AI Jobs
The prime source for jobs and talents in AI, ML, Data Science and Big Data: Insights AI-Jobs
Python source for tables and charts: Kaggle.
Read more
List of Generative AI Websites
Bard
Synthesia

The footer changes its design.

GenAI Sites Page

576px ≤ Viewport width < 768px

The image repeats.



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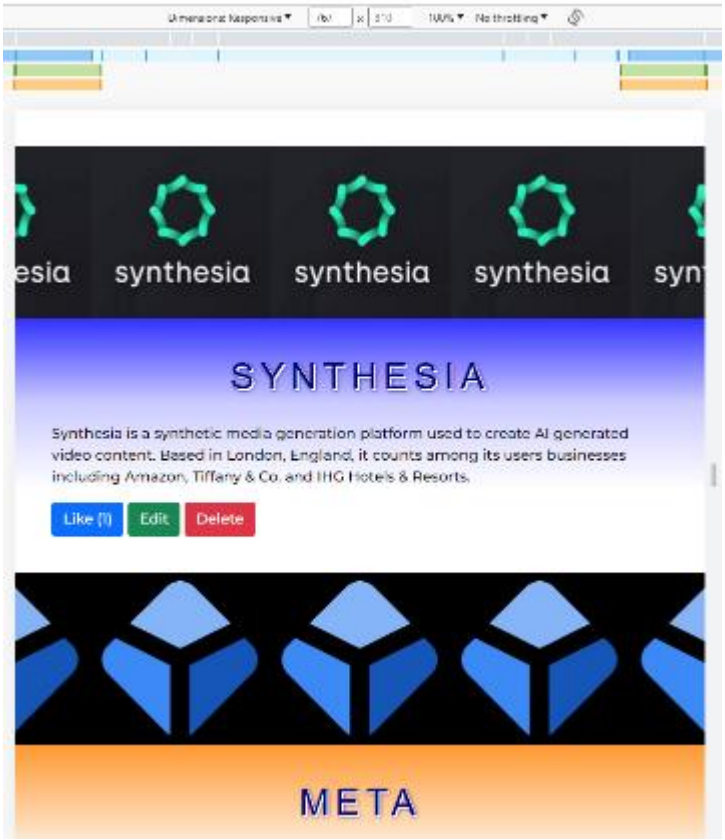

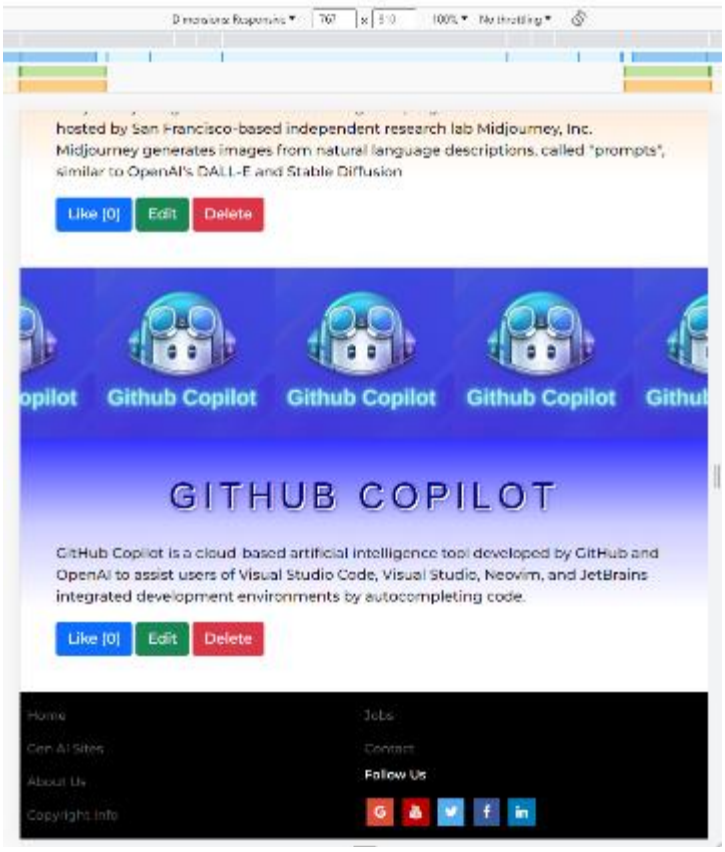

GenAI Sites Page

Viewport width < 576px

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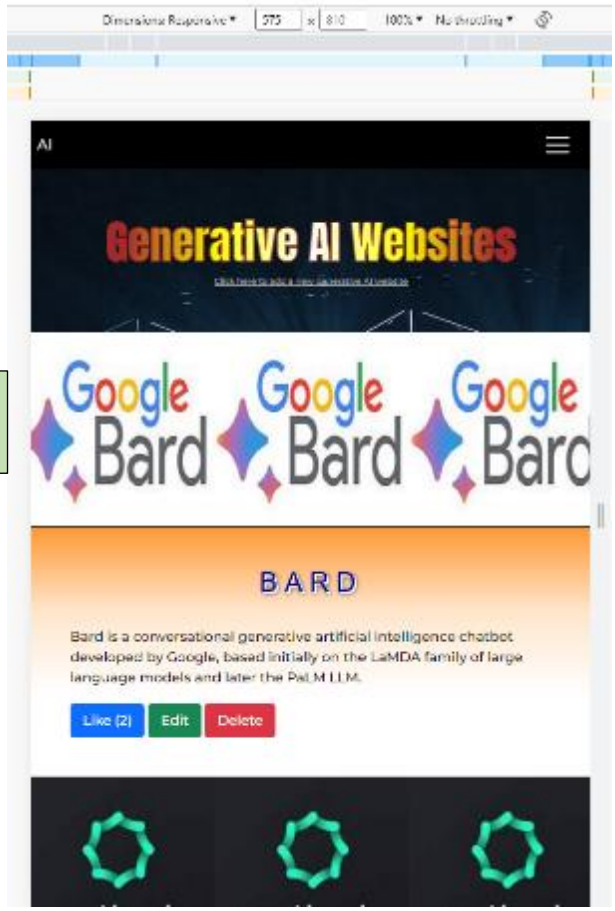
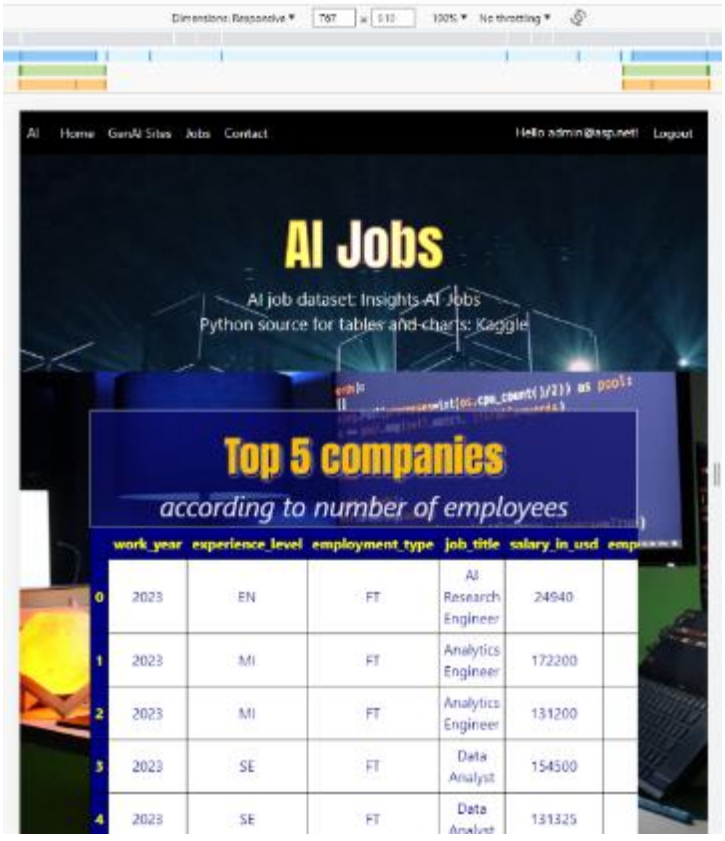
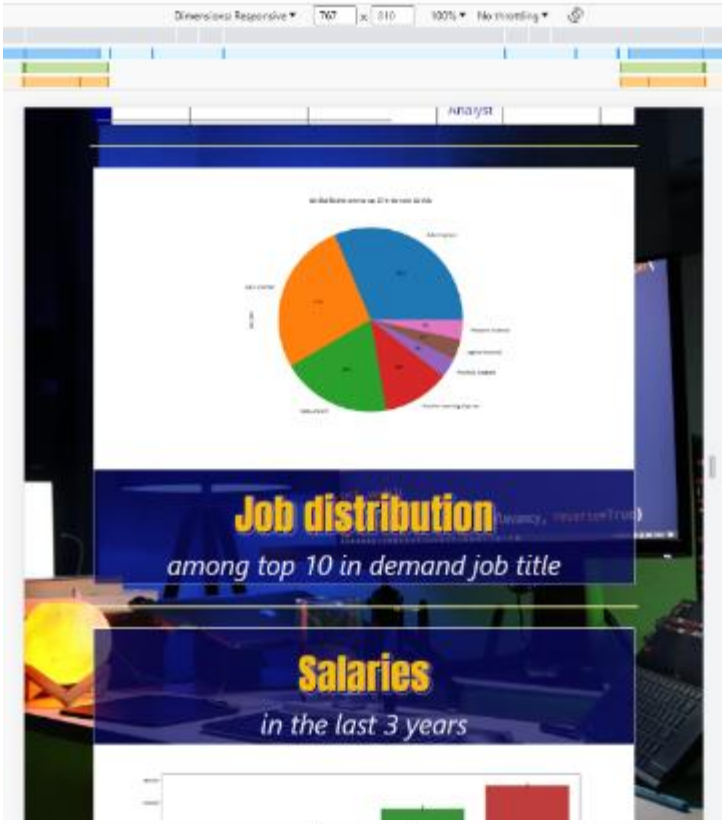


Jobs Page

576px ≤ Viewport width < 768px




Job distribution
among top 10 in demand job title
Salaries
in the last 3 years

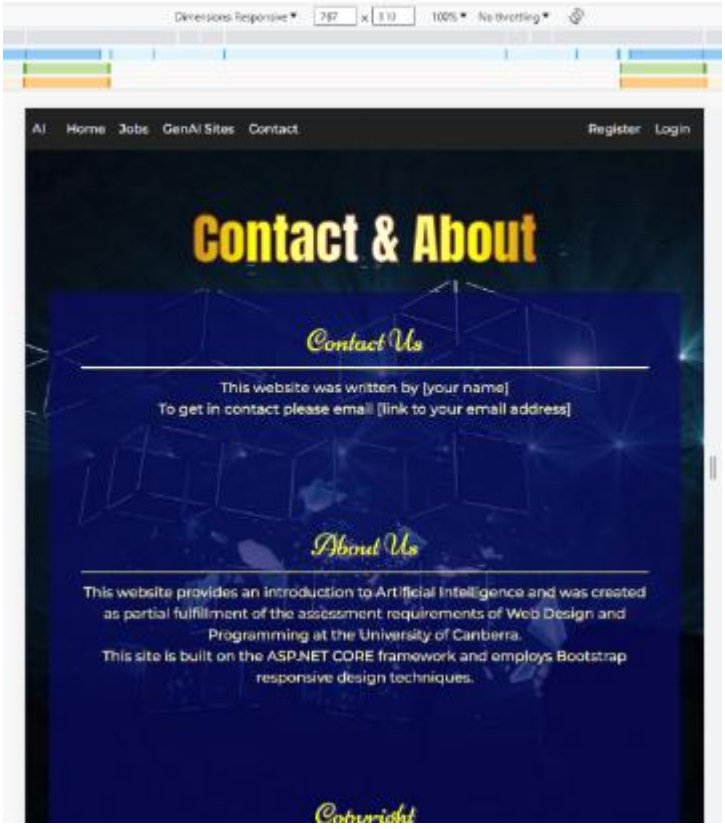

Job distribution
among top 10 in demand job title
Salaries
in the last 3 years
Follow Us

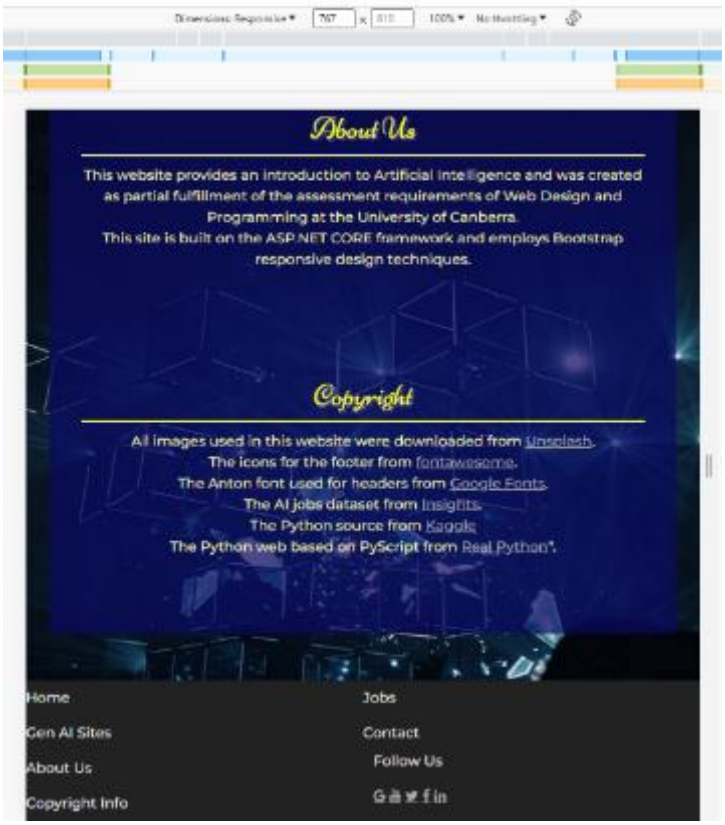
Jobs Page

Viewport width < 576px

Contact Page

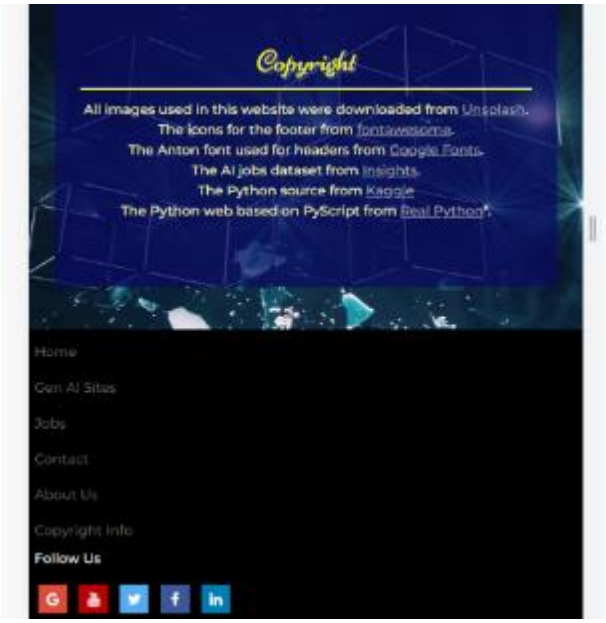
576px ≤ Viewport width < 768px





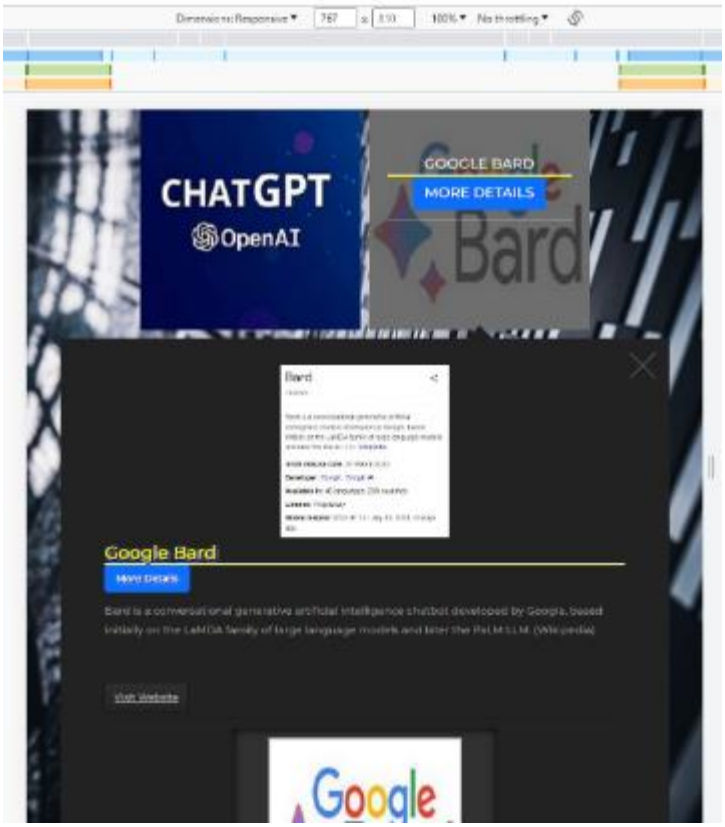
Contact Page

Viewport width < 576px

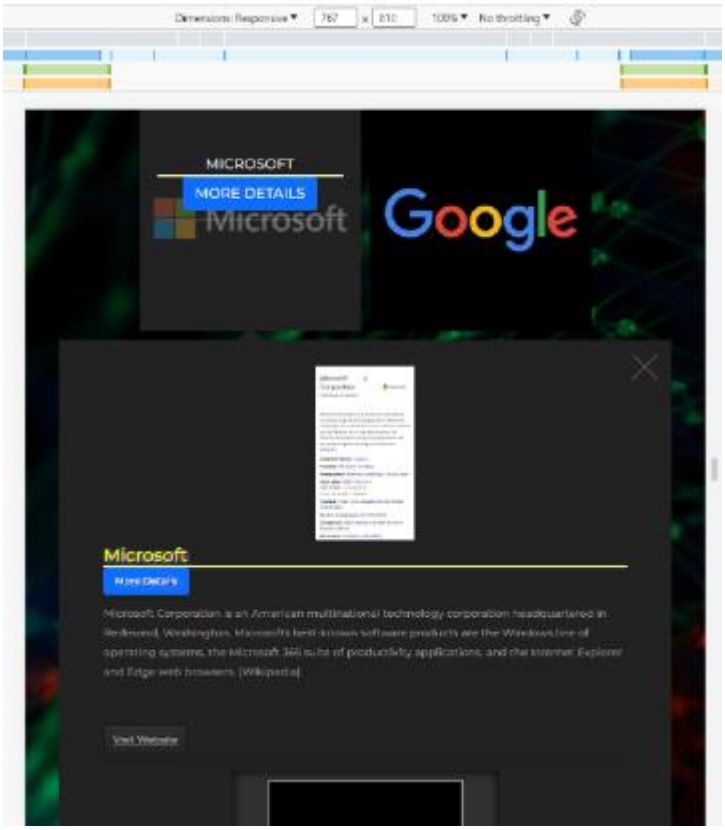


GenAI Page (no link on the menu and footer)

576px ≤ Viewport width < 768px


CHATGPT
OpenAI
GOOGLE BARD
MORE DETAILS
Bard
Google Bard
More Details
Google


GenAI Organisations
Microsoft
Google
IBM
amazon



GenAI Page (no link on the menu and footer)

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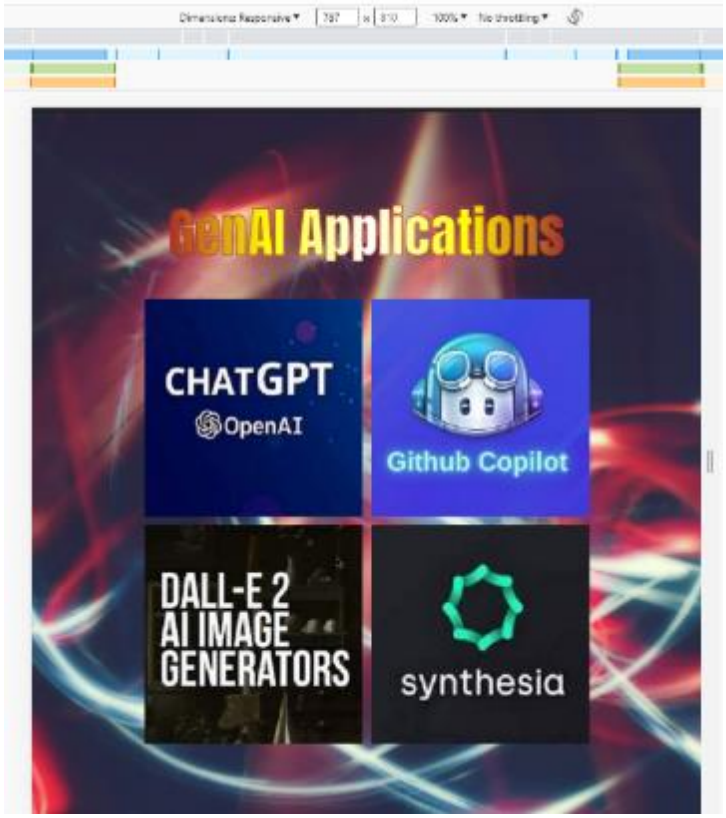

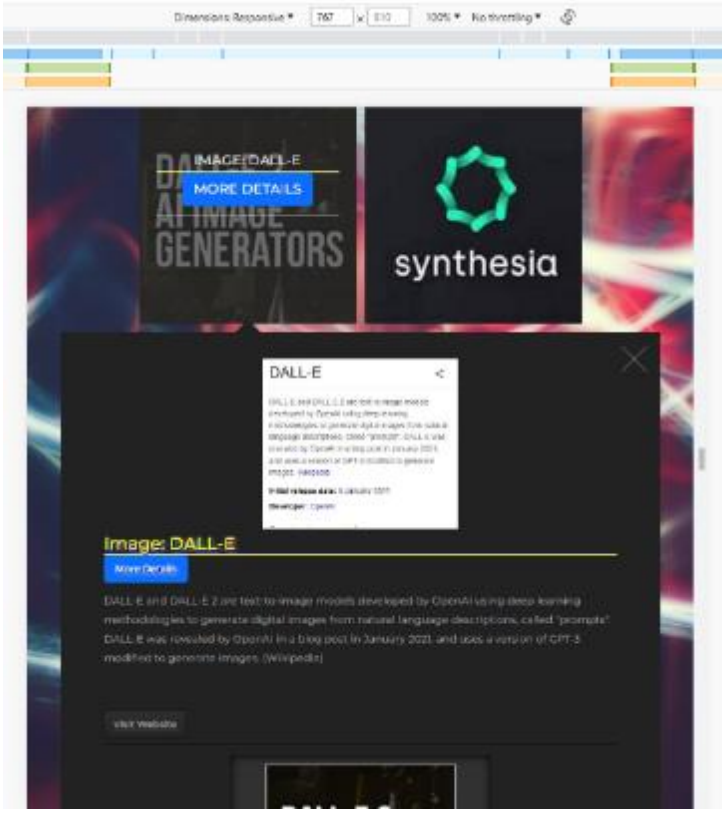
IMAGE/DALL-E
MORE DETAILS
AI IMAGE GENERATORS
synthesia
DALL-E
image: DALL-E
More Details


GenAI Tools
CHATGPT
OpenAI
Google Bard
Midjourney

Other pages (Register, Login, Create, Edit and Delete) have the same design for all viewport widths.

--- END ----