MATES Computer Science

Senior Capstone Project Bi-Weekly Progress Report

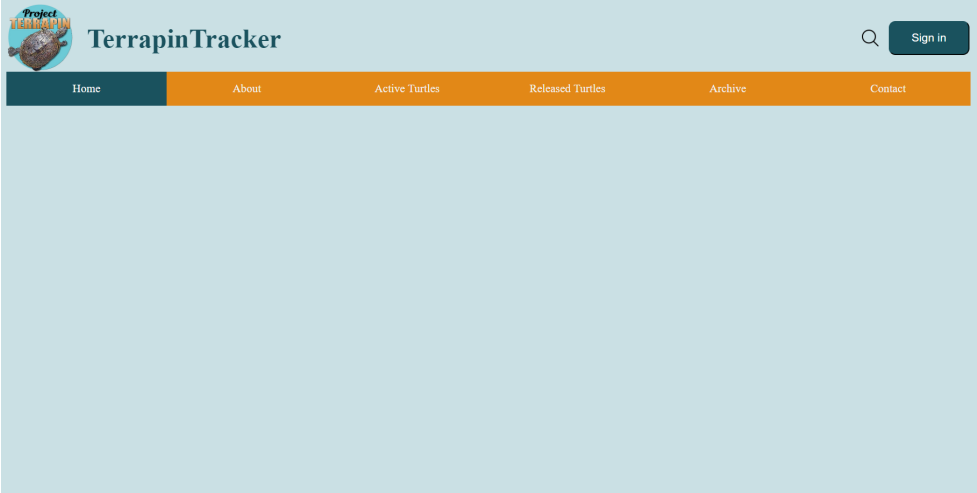
Project Title	TerrapinTracker
Team Members	Angelo Amato, Aidan Henbest, Lisa Hunt
Dates Covered by Report	February 15th, 2023 - March 3rd, 2023
Link to Github	https://github.com/henbestaj/senior-capstone

1. **Summary of Project** (Provide a one paragraph summary of your project. You can largely copy/paste this from one progress report to the next, unless there are significant changes.)

Our plan is to create a website for Project Terrapin that regularly updates the statistics on the growth of the hatchlings cared for both at MATES and other affiliated schools. We will use the measurement data for the growing terrapins and, using Python and JavaScript, create different graphs to display the data. This website will be public and linked to the main Project Terrapin website. The site will update automatically when new data is added from recent measurements. Our project will help to raise awareness of the dangers that face the Northern Diamondback Terrapin species. They are a keystone species in the Barnegat Bay, meaning they are essential to the survival of the ecosystem. Our website will hopefully inspire others to get involved in the protection of terrapins, and potentially let them track the growth of hatchlings they may have found, giving them a more personal connection to the turtle(s) they helped to save.

2. **Summary of Progress this Period** (Provide a high-level, one paragraph overview of what was accomplished during this progress period collectively by the team.)

   Our main objective during this period was to learn all or most of the skills we will need to complete this project. While there are still some skills that we need to learn, we have completed most of the courses we set out to and we have enough proficiency to move forward in the project and circle back to Codecademy when necessary. Aside from learning new skills, we worked on creating the home page for our website. All of the buttons including the navigation bar, search, and sign in have been added (however we still need to work on linking them to other pages of the site).



3. **Detailed Progress this Period, separated by Team Member** (Provide detailed information on the progress that you made in the reporting weeks. Include screenshots of code, your game or website, etc. Each team member should have a separate subsection covering their accomplishments. Not including screenshots, this section should be 1-2 pages.)

   - **Angelo (Block 2):**

     In the past two weeks I have worked primarily on Codecademy courses. I am primarily using the lessons from the Full-Stack Engineer Career Path on the site. So far I have learned HTML, CSS, and Javascript in preparation for use in this course as well as learn how to locally run a website. The HTML and CSS have so far been useful in designing our website. In CSS I learned how to use grids to format HTML elements. Furthermore, I have started working on a Django course in order to learn how to use templates, link pages together, and work with the back end as well.

     Most of the time spent on the project itself was dedicated to creating the home page and the header that will be used on all of the pages in the site for navigation. The color palette we used was adapted from the Project Terrapin website. I inserted the Project Terrapin logo in the top left corner, however, our plan is to create a logo for our project that will ultimately replace this. The navbar changes to let the user know that the elements are clickable and can be used to change the pages of the website.

- **Aidan (Block 3):**

  In the past two weeks I have been working on extensively learning Django in order to complete the backend of the website. I completed the ten week long Codecademy Build Python Web Apps with Django course, besides the final cumulative project, as I am instead applying the skills I learned to this project. In this course I learned how to create Django templates, work with data through Django models and SQL databases, write Django views, create forms in Django, create an account and authentication system in Django, and deploy a Django application. All of this knowledge will be critical to creating our website. In particular, creating forms that interact with a backend SQL server is a particularly useful skill. Creating an authentication system with accounts will also be necessary for our project. Furthermore, this course did not only teach me how to make regular accounts, but how to make admin accounts too, which will also be important for our project.

  While much of my time involved working on learning Django, I also was able to start a Django project for our application as well as the first Django app within the project (a Django project encompasses one or many apps, each app facilitating one part of the website). Lastly, by utilizing the command line I also created a virtual environment on my local computer to work within while I am coding the application.

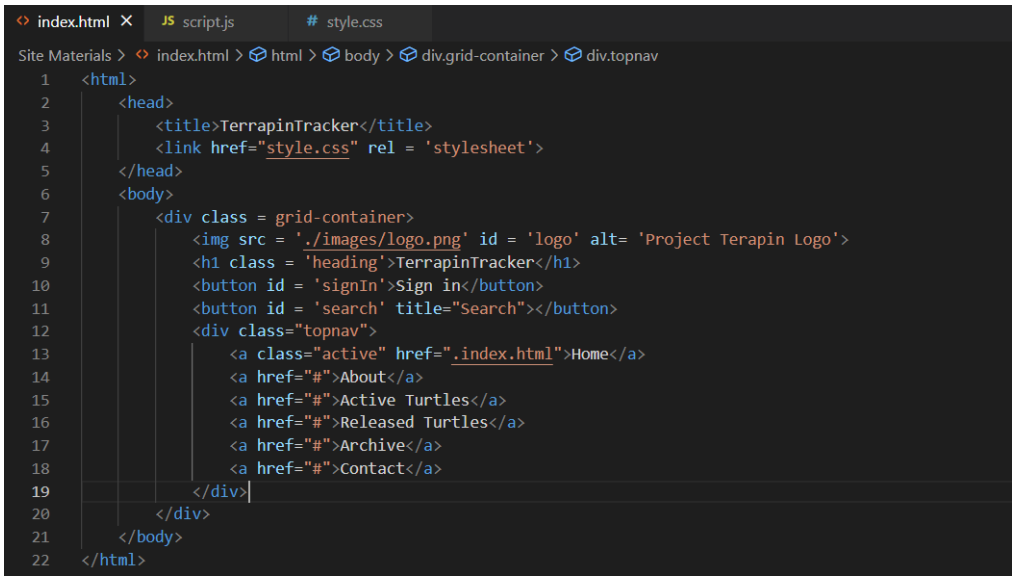
- **Lisa (Block 3):**

  In the past two weeks I worked on learning CSS, HTML, and Javascript on Codecademy. In CSS, I learned how to display elements and position them on the page. I also learned how to create website buttons that function as links to other parts of the website. I learned how to style websites using color, font, white space, photos, and more. In CSS I also learned the grid system, which we will be using for all of the website pages. The grid is useful for spacing elements so the webpage is aligned without having to enter exact pixel measurements for every element. Lastly, I learned the basics of Javascript (conditionals, functions, arrays, etc) and how to fuse it with CSS and HTML in a website.

  For the website itself, I helped with the grid formatting and designed the search and sign in buttons. All of the elements so far have clickability features, meaning when the mouse hovers over them the color and style will change to indicate to the user that it is a button.

Code:

HTML:


index.html
script.js
style.css
Site Materials > index.html > html > body > div.grid-container > div.topnav
<html>
<head>
<title>TerrapinTracker</title>
<link href="style.css" rel = 'stylesheet'>
</head>
<body>

<img src = './images/logo.png' id = 'logo' alt= 'Project Terapin Logo'>
<h1 class = 'heading'>TerrapinTracker</h1>
<button id = 'signIn'>Sign in</button>
<button id = 'search' title="Search"></button>

Home
About
Active Turtles
Released Turtles
Archive
Contact

</body>
</html>

CSS:

index.html | script.js | style.css

Site Materials > # style.css > ...

```css
/* Add a light blue background color to the top navigation */
body{
    background-color: rgb(202,224,228);
}

/*creates layout grid*/
.grid-container{
  display:grid;
  width: 100%;
  height: 10px;
  grid-template-areas:"logo title signin" "nav nav nav";
  grid-template-rows: 100px 50px;
  grid-template-columns: 120px 70% 30%;
}

/*makes buttons orange*/
.topnav {
  background-color: rgb(226,136,23);
  overflow:auto;
  grid-area:nav;
  width:90%;
  }

/*Formats the logo in the top left-hand corner*/
#logo{
  display:inline;
  grid-area:logo;
  height : 100px;
  width:100px;
}
```

```css
/*Formats search button*/
#search {
  background-image: url(https://cdn-icons-png.flaticon.com/512/54/54481.png);
  background-size: cover;
  background-color: rgb(202,224,228);
  color: none;
  border: none;
  height: 25px;
  width: 25px;
  grid-area:signin;
  justify-content:center;
  justify-self: center;
  justify-items: center;
  margin-top: auto;
  margin-bottom: auto;
  margin-right: 175px;


}
/* search hover style*/
#search:hover {
  cursor:pointer;
}

  /* Style the links inside the navigation bar */
  .topnav a {
    float: left;
    color: #f2f2f2;
    text-align: center;
    padding: 15px 16px;
    text-decoration: none;
    font-size: 17px;
    display:inline;
    align-items: center;
    width: 14.4%;
  }
```

```css
  /* Change the color of links on hover */
  .topnav a:hover {
    background-color: rgb(243,167,67);
    color: black;
  }

  /* Add a color to the active/current link */
  .topnav a.active {
    background-color:rgb(26,82,94);
    color: white;
  }

   /* Add a color to the active/current link on hover */
   .topnav a.active:hover {
    background-color:rgb(45, 125, 143);
    color: white;
  }


/*sign in button style*/
  #signin{
    background-color: rgb(26,82,94);
    border-radius: 10px;
    height: 50px;
    width: 120px;
    grid-area:signin;
    align-content: center;
    border-color: rgb(26,82,94);
    color:white;
    font-size: 17px;
    margin-top:auto;
    margin:auto;

  }
```

```css
  /*sign in hover and active style*/
    #signin:hover {
      cursor:pointer;
      background-color:rgb(45, 125, 143);
      text-decoration: underline;

    }
    #signin:active {
      background-color:rgb(65, 145, 163);
      color: black;
      text-decoration: none;
    }
  /*styles headings*/
    .heading{
      grid-area: title;
      color: rgb(26,82,94);
      font-size: 30pt;
    }
```

Django:

```python
def main():
    """Run administrative tasks."""
    os.environ.setdefault("DJANGO_SETTINGS_MODULE", "terrapin_tracker.settings")
    try:
        from django.core.management import execute_from_command_line
    except ImportError as exc:
        raise ImportError(
            "Couldn't import Django. Are you sure it's installed and "
            "available on your PYTHONPATH environment variable? Did you "
            "forget to activate a virtual environment?"
        ) from exc
    execute_from_command_line(sys.argv)


if __name__ == "__main__":
    main()
```

```python
from django.contrib import admin
from django.urls import path

urlpatterns = [
    path("admin/", admin.site.urls),
]
```

```python
import os

from django.core.wsgi import get_wsgi_application

os.environ.setdefault("DJANGO_SETTINGS_MODULE", "terrapin_tracker.settings")

application = get_wsgi_application()
```

```python
INSTALLED_APPS = [
    "django.contrib.admin",
    "django.contrib.auth",
    "django.contrib.contenttypes",
    "django.contrib.sessions",
    "django.contrib.messages",
    "django.contrib.staticfiles",
]

MIDDLEWARE = [
    "django.middleware.security.SecurityMiddleware",
    "django.contrib.sessions.middleware.SessionMiddleware",
    "django.middleware.common.CommonMiddleware",
    "django.middleware.csrf.CsrfViewMiddleware",
    "django.contrib.auth.middleware.AuthenticationMiddleware",
    "django.contrib.messages.middleware.MessageMiddleware",
    "django.middleware.clickjacking.XFrameOptionsMiddleware",
]

ROOT_URLCONF = "terrapin_tracker.urls"

TEMPLATES = [
    {
        "BACKEND": "django.template.backends.django.DjangoTemplates",
        "DIRS": [],
        "APP_DIRS": True,
        "OPTIONS": {
            "context_processors": [
                "django.template.context_processors.debug",
                "django.template.context_processors.request",
                "django.contrib.auth.context_processors.auth",
                "django.contrib.messages.context_processors.messages",
            ],
```

```python
DATABASES = {
    "default": {
        "ENGINE": "django.db.backends.sqlite3",
        "NAME": BASE_DIR / "db.sqlite3",
    }
}


# Password validation
# https://docs.djangoproject.com/en/4.1/ref/settings/#auth-password-validators

AUTH_PASSWORD_VALIDATORS = [
    {
        "NAME": "django.contrib.auth.password_validation.UserAttributeSimilarityValidator",
    },
    {
        "NAME": "django.contrib.auth.password_validation.MinimumLengthValidator",
    },
    {
        "NAME": "django.contrib.auth.password_validation.CommonPasswordValidator",
    },
    {
        "NAME": "django.contrib.auth.password_validation.NumericPasswordValidator",
    },
]
```

```python
class TurtlesConfig(AppConfig):
    default_auto_field = "django.db.models.BigAutoField"
    name = "turtles"
```

4. **Difficulties Encountered this Progress Period** (Provide detailed information on the difficulties and issues that you encountered in the reporting weeks. Discuss mitigation strategies for how you got around or plan to get around these issues.)

   One of the biggest challenges during this progress period was implementing the skills we have learned. While we did take/are taking courses to learn the languages and programs we need to use, some of them have a learning curve or require a bit of research to use.

   Another difficulty encountered was accidentally publishing the "secret key" from our Django project on the public GitHub. The "secret key" is used for encrypting data on the website, and it is important to not let it get compromised. In order to fix this issue the Django project was restarted with a new key, and this key was kept safe. The "secret key" is kept by default in a settings.py file, but instead we took the key out of this file and put it into a private_settings.py file. Then, the variables from private_settings.py were imported into settings.py using this statement: from private_settings import *. Lastly, the private_settings.py file was added to a .gitignore file.

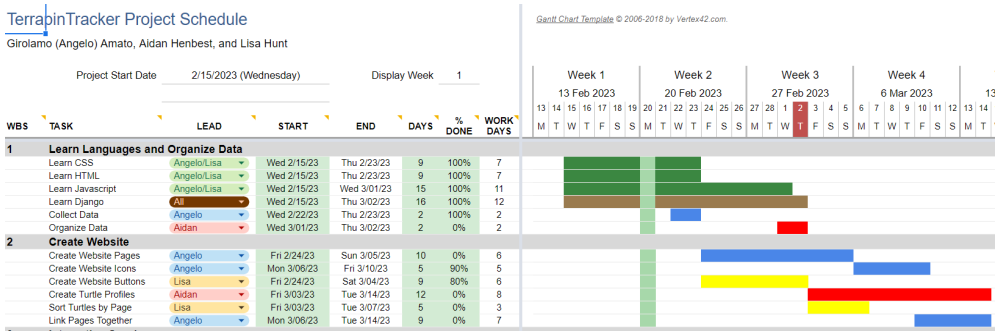
   However, we then realized that this would create an issue if anyone uses our repository, because they wouldn't have access to the private_settings.py file. To solve this, a private_settings_template.py file was created in the same directory as private_settings.py which has a blank secret key variable and instructions on how to fill this variable and change the name of the file to private_settings.py

   Another difficulty was figuring out the grid system and how to implement it on our website. It took a lot of trial and error to find the optimal number of rows and columns as well and the pixel ratios of each element in the row.

5. **Updated Gantt Chart and Discussion** (Provide a screenshot of and link to the updated Gantt Chart. Discuss any changes made to the chart since the last progress report and why.)

   Link:
   https://docs.google.com/spreadsheets/d/1oi-GrYyScA3wGwhdOlGVoMxVTLk26KTI/edit?usp=sharing&ouid=117504571525022214060&rtpof=true&sd=true

   The only major change that we had to make was extending the learning period for some of the languages. Some of the courses are taking longer than expected. We also all decided to learn Django because it is useful in creating web pages and linking all the elements together.



WBS	TASK	LEAD	START	END	DAYS	% DONE	WORK DAYS
1	**Learn Languages and Organize Data**						
	Learn CSS	Angelo/Lisa	Wed 2/15/23	Thu 2/23/23	9	100%	7
	Learn HTML	Angelo/Lisa	Wed 2/15/23	Thu 2/23/23	9	100%	7
	Learn Javascript	Angelo/Lisa	Wed 2/15/23	Wed 3/01/23	15	100%	11
	Learn Django	All	Wed 2/15/23	Thu 3/02/23	16	100%	12
	Collect Data	Angelo	Wed 2/22/23	Thu 2/23/23	2	100%	2
	Organize Data	Aidan	Wed 3/01/23	Thu 3/02/23	2	0%	2
2	**Create Website**						
	Create Website Pages	Angelo	Fri 2/24/23	Sun 3/05/23	10	0%	6
	Create Website Icons	Angelo	Mon 3/06/23	Fri 3/10/23	5	90%	5
	Create Website Buttons	Lisa	Fri 2/24/23	Sat 3/04/23	9	80%	6
	Create Turtle Profiles	Aidan	Fri 3/03/23	Tue 3/14/23	12	0%	8
	Sort Turtles by Page	Lisa	Fri 3/03/23	Tue 3/07/23	5	0%	3
	Link Pages Together	Angelo	Mon 3/06/23	Tue 3/14/23	9	0%	7

6. **Tasks to Be Worked on in Next Progress Period** (Discuss the tasks to be worked on in the following two weeks. Discuss who is working on each.)

Angelo	Aidan	Lisa
● Create different pages of website ○ Django Templates ○ About ○ Active Turtles ○ Released/Archive ○ Contact ○ Sign in page ● Create a way to navigate website ○ Navigation bar	● Organize previous data ○ Put into useable format for MySQL ● Create Django models ○ Models are classes that interact with a database in Django ○ Connect them with a MySQL database ● Create turtle profiles ○ Use old data ○ Work with the previously created Django models	● Design the search box ○ Search by turtle ● Create turtle navigation buttons ○ Create grid and display icons/names ○ Sort by page ● Create buttons for turtle information ○ Edit/add/remove buttons ● Sort Turtles by page ● Continue learning Django basics ○ Link content together ● Start learning D3 graphs

7. **Additional Information** (Provide any additional information that you want to provide in this section; for example, one of your teammates is going away next week, your Github account is gone, etc. It could be good news as well.)

   We still need to meet with Dr. Wnek. There have been a few schedule conflicts, but we hope to meet with him very soon (start of next week).