

HUMANITIES AND ENGINEERING PORTAL

A PROJECT REPORT

Submitted by

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for

Usability Research and Engineering (ENSE-871)

Under the Guidance of

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TABLE OF CONTENTS

TABLE OF CONTENTS.....	i
1. TEAM DETAIL	1
1.1 Team name and members:	1
1.2 Project sponsor:	1
2. BUSINESS NEED / OPPORTUNITY.....	2
2.1 Background and Business need:	2
2.2 Opportunity:.....	2
3. REFLECTIONS ON PROJECT PLANNING, EXECUTION & CLOSING	3
3.1 NorthStar & Carryover customers:	3
3.2 Summarized assumptions made and constraints uncovered:	3
3.3 Summarized key findings from affinity diagramming and empathy mapping: 3	
3.4 Initial & evolution of USM/MVPs and Comments:	4
3.4.1 MVP-1:	4
3.4.2 MVP-2:	4
3.4.3 MVP-3:	5
3.4.4 Final solution:.....	5
3.5 Linked design ideas topics discussed in class relating to people-centered design:	5
3.6 Our final WordPress solution.	6
4. REFLECTIONS ON PROJECT RESULTS	8
4.1 Summarization on how we felt about this project (likes/dislikes).	8
4.2 Summarization on what went well during the project.	8
4.3 Summarization on what did not go well during the project.	8
4.4 How successful was Team Grapes in translating prototypes into WordPress reality?.....	8
4.5 Did the people-centered design ideas discussed in lectures help/hinder your design explorations?	8
4.6 Future Consideration.	9

4.7	Summarize opportunities and design ideas for future work.	9
5.	WORDPRESS THEME, PLUGINS AND CUSTOM CODE	10
5.1	Theme and Plugins.	10
5.2	Custom Code.	11

1. TEAM DETAIL

1.1 Team name and members:

- **Team Name:** Team Graps
- **Members:**
 1. Aliasgar Saifeebhai Mithawala
 2. Dinesh Dalip
 3. Premalkumar Patel
 4. Savan Rameshbhai Pedhadiya

1.2 Project sponsor:

Dr. Tim Maciag (ENSE 871 Professor)

2. BUSINESS NEED / OPPORTUNITY

2.1 Background and Business need:

Currently Canadian Engineering Education Association (CEEAA) provides a digital habitat for the Special Interest Groups (SIG). However, the existing website is outdated and lacks to provide an optimal user experience. More, the website does not have the tools that are mandatory and will enhance a SIG experience to be more productive. With the user feedback, it has become apparent that there is a gap in the community, making it challenging for SIGs to connect with others who share similar interests and could potentially help each other by collaborating.

2.2 Opportunity:

This is an opportunity to create a platform where SIG members can collaborate seamlessly and express their shared interests effortlessly. By enhancing features and offering additional tools, this platform can boost productivity and maximize outcomes. Such a platform would allow educators to engage with a broader audience and individuals with the same interest.

3. REFLECTIONS ON PROJECT PLANNING, EXECUTION & CLOSING

3.1 NorthStar & Carryover customers:

- **NorthStar(target) customer:** Humanities and Engineering SIG
- **Carryover customers:** Other CEEA members, and general public including student and teachers.

3.2 Summarized assumptions made and constraints uncovered:

- **Constraints:** The major constraint in the project was to use WordPress platform to develop a low maintenance solution. The second constraint was limited user interaction and involvement with the project.

3.3 Summarized key findings from affinity diagramming and empathy mapping:

From the user research by affinity diagram and empathy mapping we found out major points that would affect the final solution. First point was, users have a wide range of technology skills. Therefore, we need to create a solution which is easy to understand by most of the users. The second point was the users were very passionate about their work. Therefore, we needed to create a solution which reflects the users and their work by using similar color schemes, metaphors, and signifiers to their work.

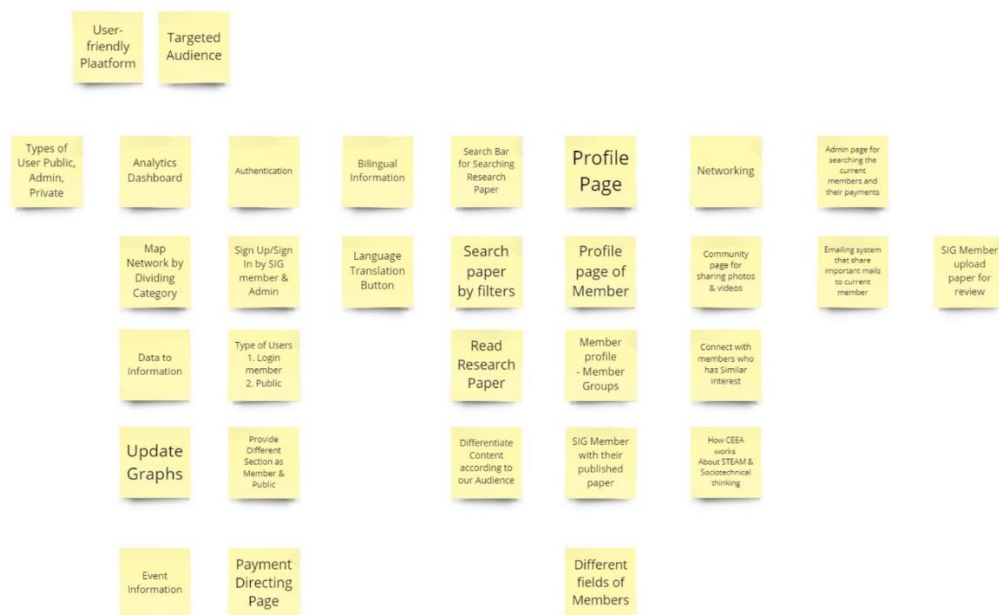


Figure 3-1: Affinity diagram

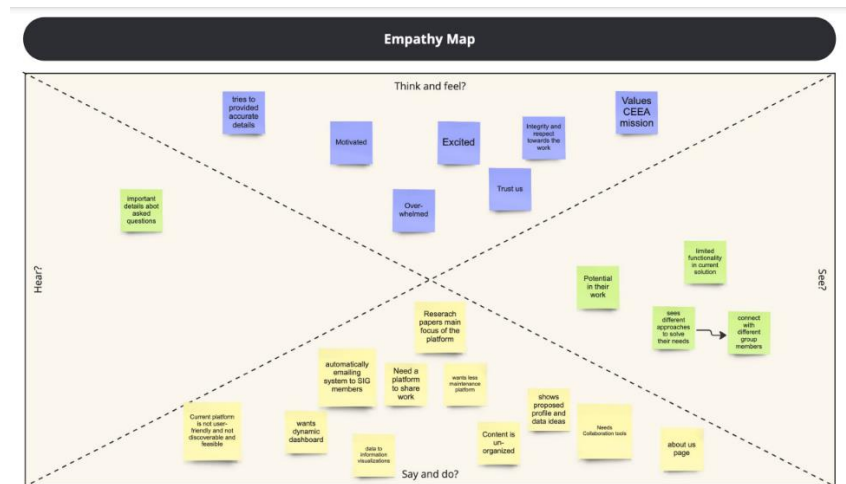


Figure 3-2: Empathy mapping

3.4 Initial & evolution of USM/MVPs and Comments:

The project was divided into sub-MVPs. The reason behind dividing the project into MVPs and deciding specific characteristics of the MVPs was to give the client a working solution at each time. This would keep the design process on going.

3.4.1 MVP-1:

First MVP was considered to contain Login/ Signup, Profile, and Community (Group) Pages. These were the core major functionality asked from the client. Furthermore, extra functionality was added from the developer side which might be useful to clients.

- **Feedback:** Client feedback was obtained from the MVP 1 and usability was tested. Most of the functionality was accepted by the client. However, there was still a lot of room for improvement. Use of social media links were not relevant to the client, images used for UI were not representing the SIGs. Client additionally, asked for disabling some of the functionality such as message options.

3.4.2 MVP-2:

MVP 2 was considered to contain additional Home Page, About Page, Members Page modification functionality.

- **Feedback:** Feedback form MVP 1 was integrated and tested with clients for success. The use of metaphor, color scheme, natural mapping was justified for joyful design. Client feedback for improvement was to contain images regarding research humanities.

3.4.3 MVP-3:

MVP 2 was considered to contain additional Topic Forms/sub group, Bilingual Functionality, Visualization of bubble graph, heat map. CSS was also fixed and improved for the UI.

- **Feedback:** Feedback included removing the map signifier front of language options. Most of the functionality looked useful to clients because of good software design tools used.

3.4.4 Final solution:

The final solution presented to the client included all of the proposed functionality from the first meeting.

3.5 Linked design ideas topics discussed in class relating to people-centered design:

- **Knowledge in the Head and World:** In decision-making, individuals leverage both internal knowledge stored in their heads and external information from the world. Cognitive processes, influenced by knowledge in the head and world, guide problem-solving efforts and enhance usability. This dynamic interplay informs users' experiences, contributing to task success and learnability. By integrating internal and external knowledge sources, designers can create interfaces that align with users' mental models, fostering intuitive decision-making, effective problem-solving, and a positive overall user experience.
- **Constraints:** In the realm of constraints, our focus lies on enabling users to effortlessly engage with functionality, eliminating the need for specialized training. By strategically placing vital information at the screen's center, we enhance user accessibility. This approach ensures an intuitive experience, allowing users to seamlessly access and utilize specific functionalities with ease, promoting usability and efficiency.
- **Brainstorming Alternatives:** In the design process, brainstorming is employed as a creative technique to explore a multitude of design solutions and possibilities. It serves as a dynamic platform for ideation, enabling designers to generate a diverse range of ideas efficiently. By fostering a collaborative and open environment, brainstorming accelerates the exploration of multiple approaches, ultimately yielding a pool of innovative design concepts and potential solutions that contribute to the development of impactful and well-considered designs.

Referring back to our prototypes, we crafted a website design that aligns with the specified requirements while leveraging plugins for support. Customer feedback during the implementation phase was instrumental in enhancing our design. We incorporated suggestions such as adding research interest's column, member profiles, and broadening connections. Prioritizing customer needs, we meticulously understood and tailored the design to meet their expectations.



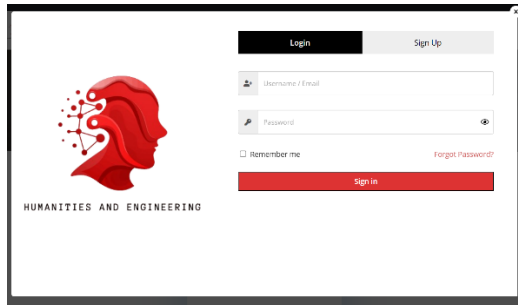


Figure 3-6: Login page

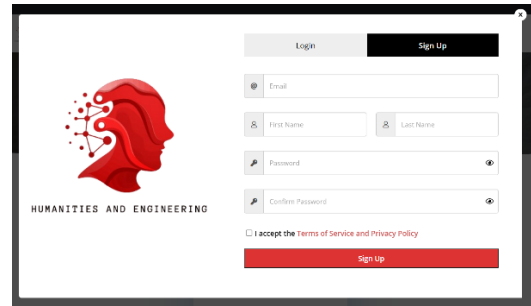


Figure 3-7: Signup page

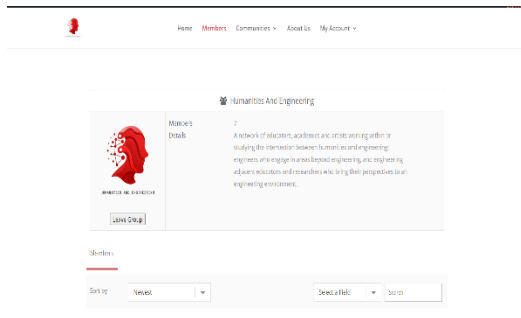


Figure 3-8: Members page - 1

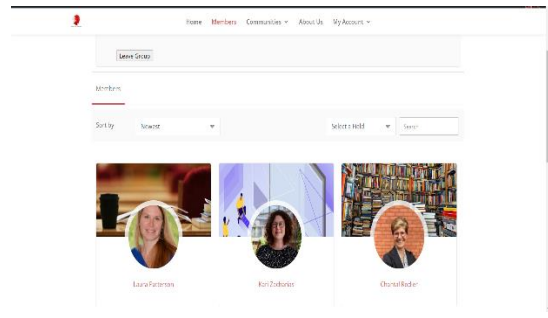


Figure 3-9: Members page - 2

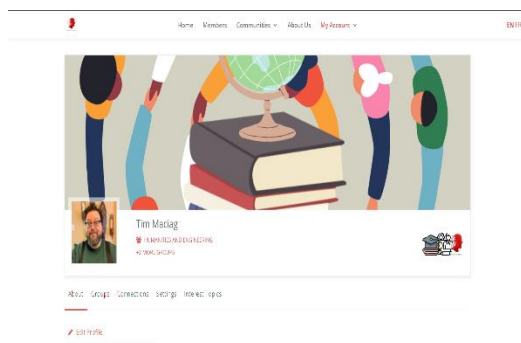


Figure 3-10: Profile page - 1

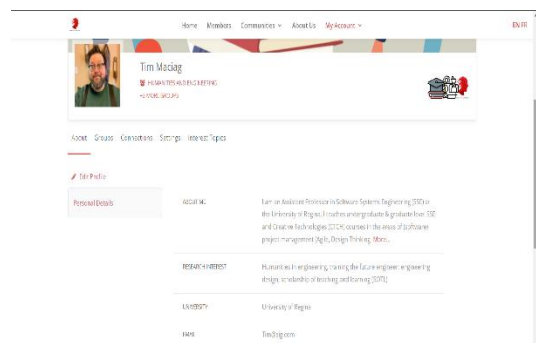


Figure 3-11: Profile page - 2

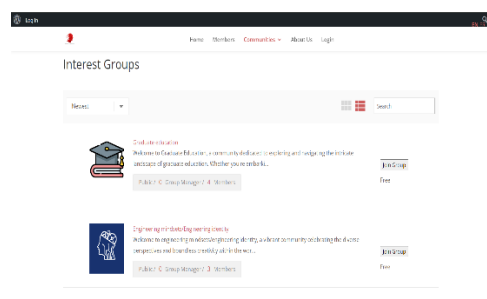


Figure 3-12: Interest Groups

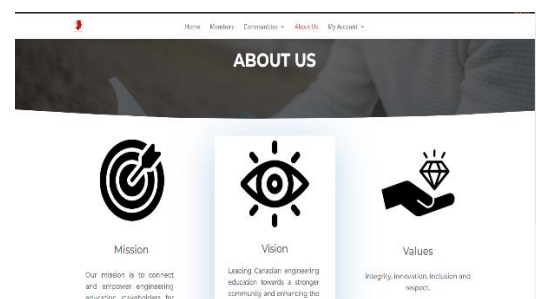


Figure 3-13: About Us

4. REFLECTIONS ON PROJECT RESULTS

4.1 Summarization on how we felt about this project (likes/dislikes).

- **Likes:** One of the most enjoyable aspects of this project was the opportunity to work closely with the CEEA-Humanities SIG and contribute to a meaningful cause. We appreciated the autonomy given to us to explore innovative design solutions and the trust placed in our team to deliver results. Additionally, collaborating with teammates who brought diverse skills and perspectives to the table enriched our creative process.

4.2 Summarization on what went well during the project.

Several aspects of the project unfolded smoothly. Communication with the SIG members was clear and consistent, allowing us to gather valuable feedback at every stage of development. Our team's proficiency in WordPress development enabled us to efficiently translate prototypes into a functional website. Moreover, adherence to Design Thinking principles facilitated a structured approach to problem-solving and ensured that user needs remained at the forefront of our design decisions.

4.3 Summarization on what did not go well during the project.

Despite our best efforts, there were challenges encountered along the way. Managing time effectively proved to be a recurring obstacle, leading to occasional delays in meeting project milestones. Additionally, integrating bilingual support into the platform posed technical complexities that required extensive troubleshooting. Furthermore, balancing the implementation of user-centered design ideas with technological constraints occasionally hindered our design explorations.

4.4 How successful was Team Grapes in translating prototypes into WordPress reality?

Overall, our team demonstrated proficiency in translating prototypes into WordPress reality. By leveraging the functionalities of WordPress and collaborating closely with developers, we were able to bring our design concepts to life effectively. However, there were instances where technical limitations constrained the exact replication of prototypes, requiring us to adapt our designs accordingly.

4.5 Did the people-centered design ideas discussed in lectures help/hinder your design explorations?

The people-centered design ideas discussed in lectures served as valuable guiding principles throughout our design explorations. By prioritizing user needs and preferences, we ensured that the final product was intuitive, accessible, and engaging.

for SIG members. However, there were instances where the implementation of these ideas was constrained by technical limitations, leading to compromises in design fidelity.

4.6 Future Consideration.

Looking ahead, there are several aspects of our project approach that we would replicate in future endeavors. Clear communication, adherence to Design Thinking principles, and collaboration with stakeholders were key factors contributing to our success and should be continued in future projects. However, we also recognize the need for improvement in certain areas. Enhanced time management strategies, proactive problem-solving, and a deeper understanding of technical requirements would be priorities for future projects. Additionally, exploring alternative platforms or technologies that better accommodate bilingual support could mitigate challenges encountered in this project.

4.7 Summarize opportunities and design ideas for future work.

Moving forward, there are numerous opportunities for further enhancing the CEEA-Humanities online platform. Implementing features such as a comprehensive member directory, interactive discussion forums, and personalized content recommendations could foster greater engagement and collaboration within the SIG community. Additionally, expanding outreach efforts to connect with similar-minded SIGs and organizations would facilitate knowledge-sharing and networking on a broader scale. Furthermore, ongoing iteration and refinement based on user feedback will be essential for ensuring the platform remains relevant and impactful in meeting the evolving needs of its members.

5. WORDPRESS THEME, PLUGINS AND CUSTOM CODE

5.1 Theme and Plugins.

- **Divi theme:**

- Divi theme has 4.9 out of 5 on Trustpilot based on 23,797 user ratings.
- This theme last updated on February 20th, 2024 and the current version is 4.24.2.
- Divi has more than 700,000 active installations.
- Divi is a top choice for many, combining dynamic features, advanced customization options, responsive website pages, and fast loading times on an easy-to-use interface. Divi is a popular premium WordPress theme developed by Elegant Themes. It's known for its flexibility and powerful drag-and-drop page builder, which allows users to create custom layouts and designs without needing to write any code.

- **Plugin-1: buddypress**

- BuddyPress has 4.1 out of 5 based on 365 user rating.
- This plugin last updated on March 25th, 2024 and the current version is 12.4.0.
- BuddyPress has over 100,000 plus active installations on WordPress sites.
- In a BuddyPress site, users can create and update their profiles, send private messages to one another, befriend and unfriend each other, form and join groups, participate in forum discussions, and more. It's a content management system.

- **Plugin-2: GTranslate**

- GTranslate has 4.9 out of 5 based on 3857 user rating.
- This plugin last updated on April 5th, 2024 and the current version is 3.0.6.
- GTranslate has over 600,000 plus active installations.
- Translate WordPress with GTranslate plugin uses Google Translate automatic translation service to translate WordPress sites with Google power and make it multilingual. With 103 available languages site will be available to more than 99% of internet users.

- **Plugin-3: MapGeo – Interactive Geo Maps**

- MapGeo has 4.8 out of 5 based on 51 user rating.
- This plugin last updated on April 4th, 2024 and the current version is 1.6.16.
- MapGeo has over 30,000 plus active installations on WordPress.
- The plugin generates interactive, responsive, touch-enabled SVG maps which are embedded directly into your HTML5 pages and compatible with all modern browsers and devices.

- **Plugin-4: Login/Signup Popup**
 - This plugin has 4.8 out of 5 based on 186 user ratings,
 - This plugin last updated on April 4th, 2024 and the current version is 2.6.4.
 - Login/Signup Popup has over 40,000 plus active installations on WordPress.
 - This plugin used to make registration, login and reset password processes.
- **Plugin-5: bbpress**
 - bbpress has 3.9 out of 5 based on 331 user ratings.
 - This plugin last updated in 2022 and the current version is 2.6.9.
 - bbpress has over 100,000 plus active installations on WordPress.
 - bbpress used to create forums on WordPress.
- **Plugin-6: ProfileGrid**
 - This plugin has 4.6 out of 5 based on 198 user ratings.
 - This plugin last updated on April 12th, 2024 and the current version is 5.8.4.
 - ProfileGrid has over 7,000 plus active installations.
 - ProfileGrid is a power-packed user profile, member, community and directory plugin. While ProfileGrid is fundamentally a user profile builder, it also offers User Groups. Groups are equivalent to Profile types where you can have different profile structures for different groups of users.

5.2 Custom Code.

- **Bubble Cart:**

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Word Cloud with Bubbles</title>
  <style>

    #wordCloudContainer {
      width: 600px;
      height: 400px;
      position: relative;
      border: none;
      overflow: hidden;
    }
```

```

.bubble {
    position: absolute;
    cursor: pointer;
    border-radius: 50%;
    display: flex;
    align-items: center;
    justify-content: center;
}

.bubble1 {
    width: 110px;
    height: 110px;
    background: radial-gradient(circle, rgba(251,24,233,0.58),
    rgba(252,114,243,0.39) );
}
.bubble2 {
    width: 130px;
    height: 130px;
    background: radial-gradient(circle, #F2F60A, #fdfea8 );
}
.bubble7 {
    width: 120px;
    height: 120px;
    background: radial-gradient(circle, #F2F60A, #fdfea8 );
}
.bubble3 {
    width: 150px;
    height: 150px;
    background: radial-gradient(circle, #394CE7, #5eb1ff );
}
.bubble6 {
    width: 110px;
    height: 110px;
    background: radial-gradient(circle, #394CE7, #5eb1ff );
}
.bubble4 {
    width: 200px;
    height: 200px;
    background: radial-gradient(circle, #05FF00, #CCFFCB);
}

```

```

.bubble5 {
    width: 140px;
    height: 140px;
    background: radial-gradient(circle, #05FF00, #CCFFCB);
}

</style>
</head>
<body>
    <div id="wordCloudContainer">

        <div class="bubble bubble1" style="top: 50px; left: 100px;"><div style="margin:
30px 10px; font-weight: bold">    <a href="http://hm.local/default-user-
group/?gid=5"> Data Visualization </a>

        </div></div>
        <div class="bubble bubble2" style="top: 150px; left: 100px;">
        <div style="margin: 45px; font-weight: bold">    <a href="http://hm.local/default-
user-group/?gid=6"> Visual Literacy </a>

        </div>
    </div>
    <div class="bubble bubble7" style="top: 80px; left: 220px;">
    <div style="margin: 35px 20px; font-weight: bold">    <a
href="http://hm.local/user-group-artificial-intelligence/"> Transdisciplinary
Competencies </a>

    </div>
</div>
    <div class="bubble bubble3" style="top: 180px; left: 250px;">
    <div style="margin: 50px 30px; font-weight: bold">    <a
href="http://hm.local/default-user-group/?gid=7"> Engineering Design </a>

    </div>
</div>
    <div class="bubble bubble6" style="top: 270px; left: 160px;">
    <div style="margin: 30px 51px; font-weight: bold">    <a
href="http://hm.local/user-group-engineering-mindsets-engineering-identity/">
Engineering Mindsets </a>

```



```

        </div>
    </div>
    <div class="bubble bubble4" style="top: 190px; left: 400px;"> <div
style="margin: 80px; font-weight: bold">      <a href="http://hm.local/user-group-
graduate-education/">Graduate Education </a>

    </div>
</div>
    <div class="bubble bubble5" style="top: 50px; left: 350px;">    <div
style="margin: 60px 5px; font-weight: bold">      <a href="http://hm.local/default-
user-group/?gid=3"> TA Training </a>

    </div>
</div>
</div>
</body>
</html>

```

Explanation: This code is used to create a custom bubble chart on homepage. Just you have to put this code on <code> section on any theme.

- **Custom code on Divi Theme:**

```
#main-content .container:before {background: none;}
```

```
/** Hide Sidebar **/
#sidebar {display:none;}
```

```
/** Expand the content area to fullwidth **/
@media (min-width: 981px){
#left-area {
width: 100%;
padding: 23px 0px 0px !important;
float: none !important;
}
}
```

```
/* Center align the main menu */  
#top-menu ,#top-menu-nav {  
    margin-right: 150px !important;  
}
```

```
/* Center align each menu item */  
#top-menu li {  
    display: inline-block;  
    float: none;  
}
```

Explanation: This code is used to give good overall look on Divi theme for Website.