**Home Assignment – 1  
Total Points: 100  
Due Date: Feb 21, 2022, 11.59 pm (through blackboard)**

***Please note that this is an individual assignment. Each student is expected to produce their own work.***

1. During the class we discussed the most common types of software architectures and architecture patterns. Over the last few years, Service Oriented Architecture and Microservices pattern have gained importance and are being widely used. I would like you to research the Internet to understand Service Oriented Architectures and Micro architectures and provide a write up in your own words based on your understanding on these two concepts using at least 1-2 pages each. (25 points)

Service Oriented Architecture

Service-Oriented Architecture is the software design concept in which organization prioritizes services over other functionalities. This makes service components capable of being taken and used in other programs or websites with similar needs. A common example being credit card transactions. A service-oriented architecture would securely accept credit card data and perform a specified transaction with no extra steps. Such a component could then be implemented in several sites selling goods or services with little to no need for change.

Service-Oriented Architecture increases element reusability, reduces the need for project maintenance by making all the projects using each element need that maintenance only once instead of once for every site.

It also follows an Agile-like system. Rather than working immediately towards a perfect end product, a working product is first developed, then improved upon, allowing it to be integrated as soon as possible.

This system is of course not without its own flaws. In order for reusability to be achieved, product-specific optimization must be sacrificed for flexibility.

Overall, Service Oriented Architecture is a good practice for most cases. Some sacrificed optimization or customization is often worth the days, weeks, or months of dev-time needed to create a module that can be overcome by using a module already created by this principle. This is especially true for low-budget or small-scale projects, but also for especially large-scale projects that will reuse elements themselves.

Microservice Architecture

Microservice architectures are a variant of service-oriented, where a whole project is based in the principles of service-oriented architecture and loose-coupling. Keeping components of the project self-contained and distinct allows not only for reuse of components, but also for independent creation, updating, and maintenance, without worrying about causing unintended side-effects in other parts of the program.

Microservice architecture takes service-oriented architecture to the extreme, and it’s benefits and drawbacks reflect this. Building a site using the principles of microservice architecture can be accomplished much more swiftly than otherwise, even with the implementation of modules which would normally take a long time to develop. Each part of the site can be independently updated, scaled, and maintained, without significant worry of damaging other parts of the project. New modules can be implemented without concern for breaking original modules. It also comes with the benefit that all modules can be developed and maintained independently. This parallelism lending efficiency to a large dev-team, while not hampering a smaller one.

All of these benefits don’t come without cost however. The cost is similar to that of Service-Oriented Architecture. Each module is completely independent, which can often be less efficient than creating the modules in tandem, optimizing them for a unified purpose. They are also less likely to be customizable to a specific project or purpose than designing something specifically for that project.

1. **Wireframing:**

Use the wireframing tool (any freely available tools on Internet like Balsamiq) to create wireframe mock-ups of either your favorite website or mobile app. Make sure to wireframe at least three screens (webpages). Copy and paste the wireframe mockups in the assignment document. (25 points)

Mockup of the mobile app for Magic: The Gathering: Arena:

Homepage:

Graphical user interface, text, application

Description automatically generated

Profile:

Graphical user interface, application, website

Description automatically generated

Packs:

Graphical user interface, application

Description automatically generated with medium confidence

1. **Personal Web Site:**

You will create a personal website using the HTML, CSS and Bootstrap topics that we are covering in the class. The HTML document will only define the structure and content of the webpage and all the styling information would be provided through an external CSS page/bootstrap that will be linked to the webpage.

The following information would need to be provided/demonstrated through this web page.

* 1. Save your webpage as ***index.html***
  2. Define an appropriate structure for your website. You can read out the structure here: <https://developer.mozilla.org/en-US/docs/Learn/HTML/Introduction_to_HTML/Document_and_website_structure>
  3. Provide your name and major
  4. Your picture or any other picture.
  5. A paragraph providing a short biography about you and your aspirations.
  6. A table depicting your weekly schedule including classes and any working hours.
  7. Links to some of your favorite sites.
  8. A bulleted list of your favorite movies or books
  9. An ordered list of hobbies or fun things you like to participate in.
  10. Any other information that you would like to provide to enrich the personal website.

Please note your grade for the Personal Web site will be determined not only on the actual html structure and content but also on the creative and aesthetic ways you have defined the style elements in the CSS page. (50 points)

***You will be also be uploading your website to your web account on the CS server. I will provide additional information about your web server account and details on uploading your Personal Web Site to your web account.***

**Copy and paste the source code of the html file as well as the CSS file in a word document and URL to your website and submit the word document in Blackboard.**

<html>

    <head>

        <title>Elijah Satrom: Bio</title>

        <link rel="stylesheet" href="style.css">

    </head>

    <body>

        <Header><h1>Elijah Satrom</h1></Header>

        <nav>

            <a href="index.html">Bio</a>—<a href="schedule.html">Schedule</a>

        </nav>

        <hr>

        <main>

            <p>

                <img src="portrait.jpg" height="25%" width="auto" align="left" alt="Picture of Elijah">

                &emsp;I'm Elijah Satrom. I'm majoring in Computer Science at NDSU and am currently of junior standing.

                <br><br>&emsp;I'm a triplet. We originally lived in Marshall, Minnesota, but moved to Fargo when we were 4, where we then grew up. We went to Davies High School where we participated in various activities, graduated, and are now going to NDSU.

                <br><br>&emsp;I have few current plans for my future beyond graduation. I intend to get a job in the field of software development, but have not yet narrowed it down beyond that. I have no other major aspirations.

            </p>

            <h2>Favorites:</h2>

            <p>The following are some things that I like, arbitrarily designated as "favorites" for the sake of this assignment.</p>

            <h3>Books:</h3>

            <ul><i>The Stormlight Archive (Series)</i> by Brandon Sanderson</ul>

            <ul><i>The Chronicles of Chrestomanci (Series)</i> by Diana Wynne Jones</ul>

            <ul><i>The Five Kingdoms (Series)</i> by Brandon Mull</ul>

            <ul><i>A Confusion of Princes</i> by Garth Nix</ul>

            <h3>Websites:</h3>

            <a href="kongregate.com">Kongregate</a>, a website hosting many free-to-play flash games. Mostly defunct since the sunset of flash.

            <br><a href="google.com">Google</a>, a search engine that's pretty handy for finding stuff.

            <br><a href="duckduckgo.com">DuckDuckGo</a>, a competitor search engine to google.

            <h3>Hobbies and Pastimes:</h3>

            <p class="note">Though ordered, these activities are not listed in any particular order of favoritism.</p>

            <li>Climbing, usually a rock wall constructed for this purpose, either at church or on campus.</li>

            <li>Baking, usually sweets, of french origin, or both</li>

            <li>Helping out at church</li>

            <li>Biking, in the summer. Either on trails through the trees or just long rides around town. Preferred to be done with a friend.</li>

            <li>Video Games, preferred with friends.</li>

            <li>ttRPGs with friends, only DnD5e so far</li>

        </main>

        <hr>

        <footer>

            <p class="note">Last updated 2022</p>

        </footer>

    </body>

</html>

<html>

    <head>

        <title>Elijah Satrom: Schedule</title>

        <link rel="stylesheet" href="style.css">

    </head>

    <body>

        <Header><h1>Elijah Satrom</h1></Header>

        <nav>

            <a href="index.html">Bio</a>—<a href="schedule.html">Schedule</a>

        </nav>

        <hr>

        <main>

            The following is Elijah's schedule, in case you want to stalk him or something.

            <table>

                <tbody>

                    <tr>

                        <th colspan="3" class="headerRow">Sunday</th>

                        <th colspan="3" class="headerRow">Monday</th>

                        <th colspan="3" class="headerRow">Tuesday</th>

                        <th colspan="3" class="headerRow">Wednesday</th>

                        <th colspan="3" class="headerRow">Thursday</th>

                        <th colspan="3" class="headerRow">Friday</th>

                        <th colspan="3" class="headerRow">Saturday</th>

                    </tr>

                    <tr>

                        <th>8:00-11:30</th><td colspan="2">Church</td>

                        <th>12:00-12:50</th><td colspan="2">French</td>

                        <th>11:00-12:15</th><td colspan="2">English</td>

                        <th>12:00-12:50</th><td colspan="2">French</td>

                        <th>11:00-12:15</th><td colspan="2">English</td>

                        <th>12:00-12:50</th><td colspan="2">French</td>

                        <th></th><td colspan="2"></td>

                    </tr>

                    <tr>

                        <th></th><td colspan="2"></td>

                        <th>13:00-13:50</th><td colspan="2">Software Dev</td>

                        <th>12:30-13:45</th><td colspan="2">Comp Sci</td>

                        <th>13:00-13:50</th><td colspan="2">Software Dev</td>

                        <th>12:30-13:45</th><td colspan="2">Comp Sci</td>

                        <th>13:00-13:50</th><td colspan="2">Software Dev</td>

                        <th></th><td colspan="2"></td>

                    </tr>

                    <tr>

                        <th></th><td colspan="2"></td>

                        <th>14:00-14:50</th><td colspan="2">Org & Arch</td>

                        <th>14:00-15:15</th><td colspan="2">Stats</td>

                        <th>14:00-14:50</th><td colspan="2">Org & Arch</td>

                        <th>14:00-15:15</th><td colspan="2">Stats</td>

                        <th>14:00-14:50</th><td colspan="2">Org & Arch</td>

                        <th></th><td colspan="2"></td>

                    </tr>

                    <tr>

                        <th></th><td colspan="2"></td>

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                        <th></th><td colspan="2"></td>

                        <th>17:30-20:00</th><td colspan="2">Work</td>

                        <th></th><td colspan="2"></td>

                        <th></th><td colspan="2"></td>

                    </tr>

                </tbody>

            </table>

        </main>

        <hr>

        <footer>

            <p class="note">Last updated 2022</p>

        </footer>

    </body>

</html>

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    border-radius: 0%;

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    background-color: #222;

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    color: #FFF;

}

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    height: 50;

}

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h3 {

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}

.note {

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    font-style: italic;

}

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}

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    text-decoration: none;

    background-color: #BBB;

}

a:active{

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    background-color: #333;

}