Experiment 1

1. Aim:

Build Responsive and Interactive UIs using Tailwind CSS

2. Theory:

a) Prerequisites of the Project:

Before starting this project, some prerequisites were necessary to set up the development environment:

- 1. **Basic knowledge of HTML, CSS, and JavaScript** for structuring, styling, and adding interactivity.
- 1. **Tailwind CSS CDN/Setup** Tailwind was included directly in the HTML using its CDN link.
- 2. Code Editor (VS Code) used for writing and organizing project files.
- 3. **Web Browser** for running and testing responsiveness.
- 4. **Basic understanding of responsive design** so that the UI adapts across mobile, tablet, and desktop devices.

b) About Tailwind CSS:

Tailwind CSS is a modern utility-first CSS framework that allows developers to build responsive and customizable user interfaces rapidly. Unlike traditional CSS frameworks that provide predefined components, Tailwind offers low-level utility classes such as flex, p-4, bg-blue-500, and text-center. These classes can be combined to create unique, scalable designs without writing extra CSS. Tailwind also supports responsive design through built-in breakpoints and includes features like hover states, dark mode, and custom configuration, making it a powerful tool for building modern web applications.

c) Tailwind CSS in this Project:

In this project, Tailwind CSS was used extensively to design a personal portfolio website. Sections like **navigation**, **hero banner**, **about**, **projects**, **and contact form** were styled using Tailwind utility classes. For example, the **hero section buttons** were styled with Tailwind's ready-to-use classes to add colors, padding, rounded corners, and hover effects. This avoided writing long CSS rules and directly applied modern UI styling in the HTML itself.

Example code used in project (Hero Section Button):

<button class="bg-white text-blue-600 px-8 py-4 rounded-lg text-lg font-bold hover:bg-blue-50 transition-all duration-300 transform hover:scale-105"> View Projects

This single line of Tailwind classes makes the button white with blue text, adds padding, rounded corners, font styling, and even a hover animation that scales the button smoothly.

d) Additional 30% Extra Features Implemented:

Beyond the basic requirements, about 30% extra functionality was added to enhance interactivity. JavaScript (script.js) introduced features such as a chatbot, voice commands, scroll progress indicator, dark mode toggle, animated skill bars, floating action button, and even a small progress game where users can level up by earning experience points. Extra UI components such as project filters, testimonials slider, quick settings panel, and scrollspy navigation dots were also integrated. These features go beyond static UI, making the portfolio more engaging and interactive while showcasing the flexibility of Tailwind CSS when combined with JavaScript.

e) Detailed Explanation of Extra Features:

The extra features added to the project made it much more advanced and interactive compared to a simple static portfolio. The **Chatbot** allows visitors to interact and get details about skills, projects, and contact info. **Voice commands** enable hands-free navigation, such as saying "scroll to top" or "dark mode." The **scroll progress indicator** visually shows how much of the page has been read. A **dark mode toggle** was implemented to improve accessibility and user preference. **Animated skill bars and counters** bring data to life by showing skills and achievements dynamically. The **floating action button** provides quick navigation to the top of the page. Gamification was introduced through the **Progress Game**, where users can gain XP and level up. Additionally, **project filters, testimonials slider, quick settings panel (with themes and print option), and scrollspy navigation dots were integrated to make the portfolio look more professional and interactive.**

3. CODE of VSCODE:-

a) Tailwind config (custom colors, animations, keyframes):

```
tailwind.config = {
           theme: {
                extend: {
                    colors: {
                        primary: '#3B82F6
                        secondary:
                        accent:
                        dark: '#1F2937
                        light: '#F8FAFC
                    animation: {
                        'pulse-slow': 'pulse 3s cubic-bezier(0.4, 0, 0.6, 1) infinite', 'bounce-slow': 'bounce 2s infinite',
                        'spin-slow': 'spin 8s linear infinite',
                        'float': 'float 6s ease-in-out infinite',
'wiggle': 'wiggle 1s ease-in-out infinite',
                        'slide-in': 'slideIn 0.5s ease-out'
                        'rotate-3d': 'rotate3d 20s linear infinite',
                        'shimmer': 'shimmer 2s linear infinite',
                        'typewriter': 'typewriter 3s steps(40) 1s forwards',
                        'fade-in-up': 'fadeInUp 0.8s ease-out'
                    keyframes:
                        float: {
                            '0%, 100%': { transform: 'translateY(0px)' },
                             '50%': { transform: 'translateY(-20px)' }
                        wiggle: {
                             '0%, 100%': { transform: 'rotate(-3deg)' },
                            '50%': { transform: 'rotate(3deg)' }
                        slideIn: {
                             '0%': { transform: 'translateX(-100%)', opacity: '0' },
                            '100%': { transform: 'translateX(0)', opacity: '1' }
                       },
                       rotate3d: {
                            '0%': { transform: 'rotateY(0deg)' },
                            '100%': { transform: 'rotateY(360deg)' }
                            '0%': { backgroundPosition: '-200% 0' },
                            '100%': { backgroundPosition: '200% 0' }
                       typewriter: {
                            '0%': { width: '0' },
                            '100%': { width: '100%' }
                            '0%': { transform: 'translateY(30px)', opacity: '0' },
                            '100%': { transform: 'translateY(0)', opacity: '1' }
</script>
<style>
```

b) Core inline styles (gradient, glass, timeline, skill-bar, project hover, indicators)

<style>

```
.gradient-bg {
      background: linear-gradient(135deg, ☐ #667eea 0%, ☐ #764ba2 100%);
   .glass-card {
       background: ☐ rgba(255, 255, 255, 0.1);
       backdrop-filter: blur(10px);
       border: 1px solid □rgba(255, 255, 255, 0.2);
      transition: all 0.3s ease;
   .card-hover:hover {
     transform: translateY(-10px);
      box-shadow: 0 20px 40px □rgba(0, 0, 0, 0.1);
   .timeline-item {
      position: relative;
       padding-left: 30px;
   .timeline-item::before {
      content: '';
       position: absolute;
       left: 0;
       top: 0;
       width: 12px;
      height: 12px;
background: □#3B82F6;
       border-radius: 50%;
       box-shadow: 0 0 10px ■#3B82F6
   .timeline-item::after {
       content: '';
       position: absolute;
       left: 5px;
    width: 12px;
    height: 12px;
background: #3B82F6;
   border-radius: 50%;
   box-shadow: 0 0 10px □#3B82F6;
.timeline-item::after {
   content: '';
    position: absolute;
    left: 5px;
   top: 12px;
width: 2px;
height: calc(100% + 20px);
   background: linear-gradient(to bottom, □#3B82F6, transparent);
   background: linear-gradient(90deg, □#3B82F6, □#1E40AF);
   background-size: 200% 100%;
   animation: shimmer 2s linear infinite;
.project-card {
   transform-style: preserve-3d;
   transition: transform 0.6s;
.project-card:hover {
   transform: rotateY(10deg) rotateX(5deg);
.floating-btn {
   position: fixed;
    bottom: 30px;
    right: 30px;
    z-index: 1000;
```

```
65
123
              <sty1e>
                  .scroll-indicator {
 124
> 125
                      position: fixed;
                     top: 0;
> 126
                      left: 0;
width: 0%;
> 127
128
                      height: 3px;
> 129
130
                      background: linear-gradient(90deg, □#3B82F6, □#1E40AF);
                      z-index: 1001;
> 131
 132
                     transition: width 0.1s ease;
 133
 134
                  .notification {
135
                     position: fixed:
136
                      top: 20px;
                     right: 20px;
) 137
> 138
                      z-index: 1002;
 139
                     animation: slideIn 0.5s ease-out;
 140
 141
                  .interactive-bg {
                     background:
> 142
 143
                          radial-gradient(circle at 20% 80%, ☐ rgba(59, 130, 246, 0.1) 0%, transparent 50%),
                          radial-gradient(circle at 80% 20%, 

                                                                                      0%, transparent 50%),
 144
 145
                         radial-gradient(circle at 40% 40%, □rgba(245, 158, 11, 0.1) 0%, transparent 50%);
 146
 147
                  .counter {
                     transition: all 0.3s ease;
 148
                     display: inline-block;
> 149
 150
 151
                  .counter.animate {
> 152
                     transform: scale(1.1);
                     color: □#3B82F6;
> 153
 154
 155
              </style>
 156
          </head>
```

c) Hero section

```
<!-- Hero Section -->
<section id="home" class="gradient-bg relative py-20">
    <div class="max-w-6xl mx-auto px-4 text-center text-white">
       <div class="mb-8">
           <h1 class="text-6xl md:text-8xl font-bold mb-6 animate-pulse-slow">
           ch2 class="text-4xl md:text-6xl font-bold mb-6 animate-pulse-slow" style="animation-delay: 1s;">
        </div>
        Full Stack Developer | AI/ML Enthusiast | Problem Solver
       <div class="flex flex-col sm:flex-row gap-6 justify-center">
           <buton class="bg-white text-blue-600 px-8 py-4 rounded-lg text-lg font-bold hover:bg-blue-50 transition-all duration-300 transfo</pre>
              View Projects
           </button>
           cbutton class="border-2 border-white text-white px-8 py-4 rounded-lg text-lg font-bold hover:bg-white hover:text-blue-600 transit
              Download Resume
           </button>
        </div>
    </div>
</section>
```

d) Stats counters (animated numbers)

```
<!-- Stats Section -->
<section class="py-20 gradient-bg">
    <div class="max-w-6xl mx-auto px-4">
        <div class="grid grid-cols-2 md:grid-cols-4 gap-8 text-center">
            <div class="glass-card p-6 rounded-xl animate-fade-in-up">
                <div class="text-4xl font-bold text-white mb-2 counter" data-target="3">0</div>
                <div class="text-gray-200">Internships</div>
            <div class="glass-card p-6 rounded-xl animate-fade-in-up" style="animation-delay: 0.1s;">
                <div class="text-4xl font-bold text-white mb-2 counter" data-target="3">0</div>
                <div class="text-gray-200">Projects</div>
            <div class="glass-card p-6 rounded-xl animate-fade-in-up" style="animation-delay: 0.2s;">
                <div class="text-4xl font-bold text-white mb-2 counter" data-target="1">0</div>
                <div class="text-gray-200">Hackathon</div>
            <div class="glass-card p-6 rounded-xl animate-fade-in-up" style="animation-delay: 0.3s;">
                <div class="text-4xl font-bold text-white mb-2 counter" data-target="98">0</div>
                <div class="text-gray-200">Success Rate %</div>
            </div
        </div>
    </div
</section>
```

e) Live ChatBot Section

```
<!-- Live Chat Bot Section -->
<section class="py-20 px-4 bg-gradient-to-r from-purple-600 to-blue-600">
    <div class="max-w-4xl mx-auto";</pre>
        <h2 class="text-4xl font-bold text-center mb-16 animate-fade-in-up text-white">Chat with AtharvaBot 🖷 /h2>
        <div class="glass-card p-8 rounded-xl card-hover animate-fade-in-up"</pre>
           <div id="chatContainer" class="h-96 bg-white rounded-lg p-4 mb-4 overflow-y-auto">
               <div class="flex items-start space-x-3 mb-4">
                    <div class="w-8 h-8 bg-blue-500 rounded-full flex items-center justify-center text-white text-sm"> ₩ </div>
                    <div class="bg-gray-100 p-3 rounded-lg max-w-xs">
                       Hi! I'm AtharvaBot. Ask me anything about Atharva's skills, projects, or experience!
                    </div>
                </div>
            </div>
            <div class="flex space-x-2">
               <input type="text" id="chatInput" placeholder="Type your message..." class="flex-1 p-3 border border-gray-300 rounded-lg focus</pre>
                <button id="sendChat" class="bg-blue-600 text-white px-6 py-3 rounded-lg hover:bg-blue-700 transition-colors">Send</button>
        </div>
    </div>
</section
```

f) 3D cube styles and animation

```
/* 3D Cube Styles */
CodeMate
.cube-container {
   perspective: 1000px;
   width: 100px;
   height: 100px;
CodeMate
.cube {
   width: 100%;
height: 100%;
   position: relative;
   transform-style: preserve-3d;
   animation: rotate3d 20s ■ linear infinite;
   cursor: pointer;
CodeMate
animation-play-state: paused;
.face {
   position: absolute;
    width: 100px;
    background: linear-gradient(45deg, □ #3B82F6, □ #1E40AF);
    border: 2px solid | rgba(255, 255, 255, 0.3);
    display: #flex;
    align-items: center;
    justify-content: center;
    font-weight: bold;
    color:  white;
    font-size: 12px;
    text-align: center;
    backdrop-filter: blur(10px);
    transition: all 0.3s M ease;
CodeMate
   background: linear-gradient(45deg, □ #F59E0B, □ #D97706);
   transform: scale(1.1);
.front { transform: rotateY(0deg) translateZ(50px); }
CodeMate
.back { transform: rotateY(180deg) translateZ(50px); }
CodeMate
.right { transform: rotateY(90deg) translateZ(50px); }
.left { transform: rotateY(-90deg) translateZ(50px); }
CodeMate
.top { transform: rotateX(90deg) translateZ(50px); }
.bottom { transform: rotateX(-90deg) translateZ(50px); }
CodeMate
@keyframes rotate3d {
   0% { transform: rotateX(@deg) rotateY(@deg); }
100% { transform: rotateX(360deg) rotateY(360deg); }
```

g) Notification and particle helpers

```
const notify = (msg) => {
    const n = document.createElement('div');
    n.className = 'notification glass-card p-4 rounded-lg shadow-lg text-white';
    n.innerHTML = '<div class="flex items-center space-x-3"><span>${msg}</span></div>;
    document.body.appendChild(n);
    setTimeout(() => { n.style.opacity = '0'; setTimeout(() => n.parentNode?.removeChild(n), 300); }, 3000);
};

CodeMate
const createParticle = (x, y, size = Math.random() * 10 + 5, color = 'radial-gradient(circle, #3882F6 0%, transparent 70%)') => {
    const p = document.createElement('div');
    p.className = 'particle';
    object.assign(p.style, { left: x + 'px', top: y + 'px', width: size + 'px', height: size + 'px', background: color });
    document.body.appendChild(p);
    setTimeout(() => p.parentNode?.removeChild(p), 3000);
};
```

h) Counter animation logic

```
const animateCounter = (c) => {
    const target = parseFloat(c.getAttribute('data-target'));
    const step = target / 125; // 2000ms / 16ms = 125 steps
    let current = 0;
    const timer = setInterval(() => {
        current += step;
        if (current >= target) { current = target; clearInterval(timer); }
        c.textContent = target >= 100 ? Math.floor(current).toLocaleString() : Math.floor(current);
        c.classList.add('animate');
        setTimeout(() => c.classList.remove('animate'), 300);
}, 16);
};
```

i) Wrapper + utilities + minimal CSS injection

j) Quick Settings panel (theme, reduce motion, print)

```
const settingsToggle = create('button', { id: 'settingsToggle', className: 'fixed top-4 left-4 z-50 w-12 h-12 bg-gradient-to-r from-blue-500 to-blue-700 text-white rounded-full shadow-lg hover:shadow-xl const settingsPanel = create('div', { id: 'settingsPanel', className: 'settings-panel hidden' });
settingsPanel.innerHTML = `<div class="glass-card p-4 rounded-xl shadow-lg">
          <h3 class="font-bold mb-3 text-white">Quick Settings</h3>
         <div class="space-y-3 text-sm">
                        <div class="text-white/90 mb-2">Theme</div>
                                <button class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#388.</p>
                                 Courton class="theme-btn w-/ h-/ rounded-full border-2 border-white/40" data-colors="#3882F6, #1640AF Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#189981, #055740" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#159808, #097706" Courton class="#159808, #097706" Courton
                                                                                                                                                                                                                                                        style="background: linear-gradient(45deg.#388]
                                                                                                                                                                                                                                                         style="background: linear-gradient(45deg,#10B981,#065F46
                                                                                                                                                                                                                                                         style="background: linear-gradient(45deg,
                                                                                                                                                                                                                                                                                                                                                                                    '></button>
                                  <button class="theme-btn w-7 h-7 rounded-full border-2 border-white/40" data-colors="#885CF6,</pre>
                                                                                                                                                                                                                                                          style="background: linear-gradient(45deg,#8B5CF6
                          </div>
                 <label class="flex items-center gap-2 text-white/90")</pre>
                         <input id="reduceMotionToggle" type="checkbox"> Reduce motion
                 </div>
 </div>
document.body.appendChild(settingsToggle);
document.book.appendchild(settingsPanel);
settingsPanel.addEventListener('click', () => settingsPanel.classList.toggle('hidden'));
settingsPanel.addEventListener('click', (e) => e.stopPropagation());
document.addEventListener('click', (e) => {
    if (!settingsPanel.classList.contains('hidden') 8& !settingsPanel.contains(e.target) 8& e.target !== settingsToggle) settingsPanel.classList.add('hidden');
settingsPanel.querySelectorAll('.theme-btn').forEach(btn => btn.addEventListener('click', () => {
        const [primary, primaryDark] = btn.getAttribute('data-colors').split(',');
        document.documentElement.style.setProperty('--primary', primary);
document.documentElement.style.setProperty('--primaryDark', primaryDark);
         notify(' Theme updated');
 settingsPanel.querySelector('#reduceMotionToggle').addEventListener('change', (e) => {
        document.body.classList.toggle('reduce-motion', e.target.checked);
        notify(e.target.checked ? '♠ Reduced motion on' : ' Reduced motion off');
settingsPanel.querySelector('#printBtn').addEventListener('click', () => window.print());
```

k) Project filters (All, AI/ML, Web, Mobile)

1) Testimonials slider (auto-rotating with Prev/Next)

```
// Testimonials Slider
const contactSection = document.getElementById('contact');
if (contactSection) {
      const testimonials = create('section', { id: 'testimonials', className: 'py-20 px-4' });
      <div class="glass-card p-8 rounded-xl card-hover animate-fade-in-up">
                 <div id="testimonialSlider" class="relative overflow-hidden">
                        <div id="testimonialSlides" class="slides";</pre>
                             div class="slide"><div class="p-4">class="text-gray-800 text-lg italic">"Athgrya is a quick learner and a reliable teanmate. His work on our AI project was exceptional."
div class="nt-3 text-gray-600">— Mentor, AI Internship</div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div>
                        <div class="flex items-center justify-between mt-6">
                            <button id="prevTestimonial" class="bg-blue-600 text-white px-4 py-2 rounded-lg hover:bg-blue-700">+ Prev</button>
                              cbutton id="nextTestimonial" class="bg-blue-600 text-white px-4 py-2 rounded-lg hover:bg-blue-700">Next +</buttons</pre>
                        </div>
                 c/divs
            c/div>
      c/divo':
     contactSection.parentNode.insertBefore(testimonials, contactSection);
      const slidesEl = testimonials.querySelector('#testimonialSlides');
      let idx = 0; const total = slidesE1.children.length;
     const render = () => { slidesEl.style.transform = 'translateX(-\frac{1}{2} dix * 180}%)'; }; testimonials.querySelector('#prevTestimonial').addEventListener('click', () => { idx = (idx - 1 + total) % total; render(); }); testimonials.querySelector('#nextTestimonial').addEventListener('click', () => { idx = (idx + 1) % total; render(); });
      setInterval(() => { idx = (idx + 1) % total; render(); }, 5000);
```

m) Quick Search overlay (Ctrl+K)

```
const overlay = create('div', { id: 'quicksearch', className: 'fixed inset-0 bg-black/50 backdrop-blur-sm hidden items-center justify-center z-50' });
overlay.innerHTML = `<div class="bg-white rounded-lg p-6 w-11/12 md:w-1/2 shadow-x1">
        cinput id="quickSearchInput" type="text" placeholder="Type a section (home, about, projects, experience, testimonials, contact) and hit Enter" class="W-full p-3 border border-gray-300 rounded-lg focus:border-blue-500 focus:outline-none">
cdiv class="text-sn text-gray-500 mt-2">Press Est to closec/div>
    document.body.appendChild(overlay);
    const showOverlay = () => { overlay.classList.remove('hidden'); setTimeout(() => overlay.classList.add('flex'), 0); overlay.querySelector('#quickSearchInput').focus(); };
    const hideOverlay = () => { overlay.classList.add('hidden'); overlay.classList.remove('flex'); };
    document.addEventListener('keydown', (e) => {
    if ((e.ctrlKey || e.metaKey) && e.key.toLowerCase() === 'k') { e.preventDefault(); showOverlay(); }
        if (e.kev === 'Escape') hideOverlav():
    overlay.addEventListener('click', (e) => { if (e.target === overlay) hideOverlay(); });
overlay.querySelector('#quickSearchInput').addEventListener('keydown', (e) => {
         if (e.key === 'Enter') {
             const val = e.target.value.trim().toLowerCase();
              const map = { home: '#home', about: '#about', projects: '#projects', experience: '#experience', testimonials: '#testimonials', contact: '#contact' };
              const id = map[val]:
              if (id && document.querySelector(id)) {
                  document.querySelector(id).scrollIntoView({ behavior: 'smooth' });
                  hideOverlav()
             } else notify(' / Try: home, about, projects, experience, testimonials, contact');
    });
1)();
```

4. OUTPUT:-

1.



Fig1.

2.

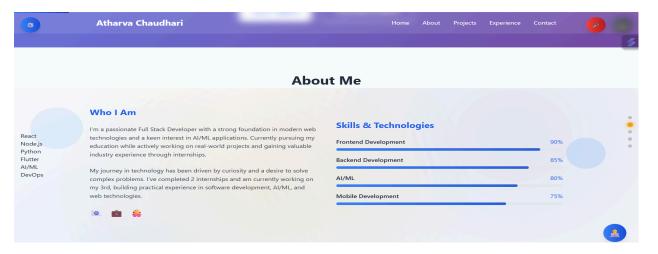


Fig2.

3. Fig3.



4.

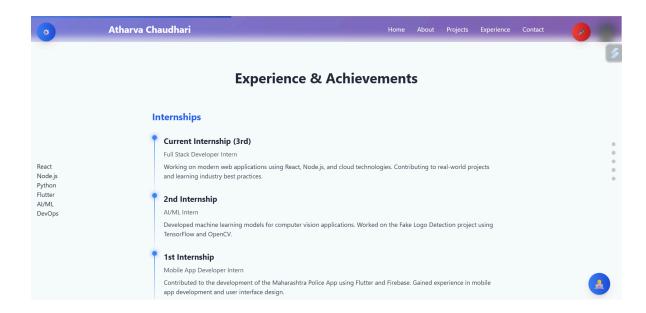


Fig4.

5.

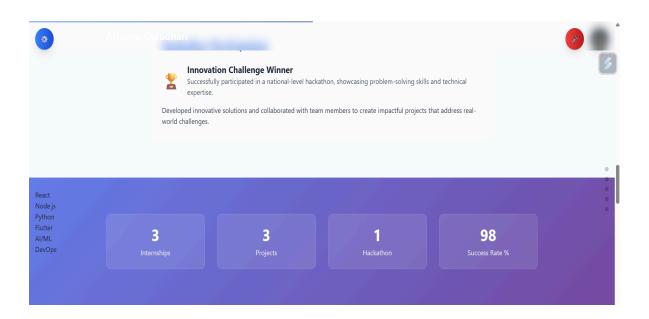


Fig5.

6.

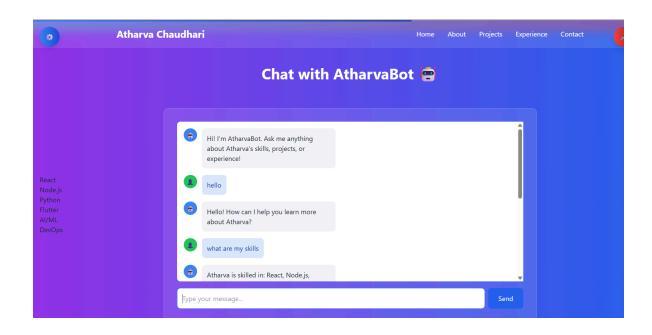


Fig6.

7.

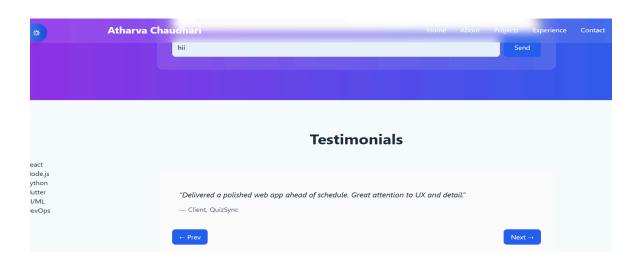


Fig7.

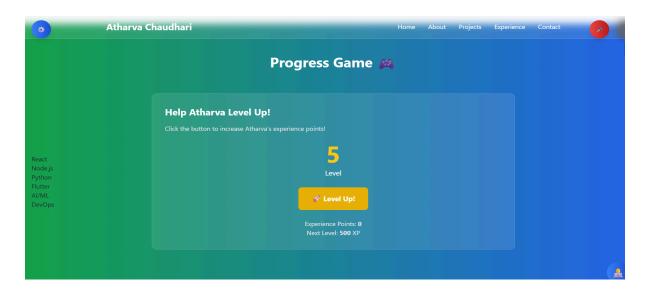


Fig8.

9.

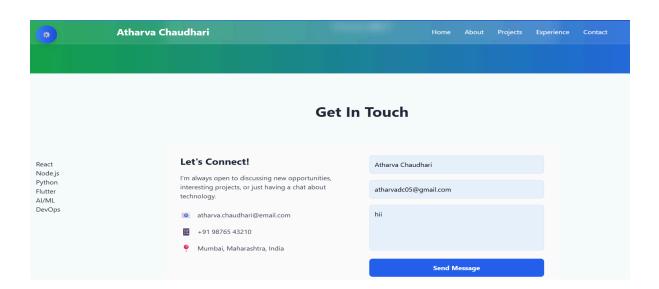


Fig9.

5. Conclusion:

This project successfully demonstrated how Tailwind CSS can be used to build a modern, responsive, and interactive portfolio website. By combining utility-first styling with JavaScript enhancements, the project not only fulfilled the experiment's aim but also went further by adding advanced features like voice commands, dynamic counters, animations, and a chatbot. The result is a professional, user-friendly portfolio that highlights both the power of Tailwind CSS and the ability to create highly interactive web experiences.