MIT Art, Design and Technology University
MIT School of Computing, Pune

Department of Information Technology

SUBJECT – FULL STACK FRONT END DEVELOPMENT
COURSE CODE – 23IT3001

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Under the Guidance of
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Assignment 1 : Bootstrap Homepage

Aim :

The aim of this assignment is to design and develop a responsive static homepage for a gaming-themed website titled **GameHub**, using the Bootstrap framework. The goal is to understand how Bootstrap simplifies front-end development using its pre-defined components, grid system, responsive utilities, and typography to build an engaging and mobile-friendly gaming homepage.

Theory :

1.All About Bootstrap

Bootstrap is one of the most popular front-end frameworks used to design responsive and mobile-first web interfaces. It provides pre-built CSS and JavaScript components that reduce development time and eliminate the need to write large amounts of custom code. In this assignment, Bootstrap is used to create the static homepage of **GameHub**, ensuring that the layout is visually appealing, user-friendly, and adjusts smoothly across devices ranging from small mobile phones to large desktop screens.

A static homepage acts as the first point of interaction for users, representing the identity and purpose of a website. For GameHub, the homepage introduces the platform, highlights key features, and provides navigation to important sections. Bootstrap's **12-column grid system** forms the backbone of the layout, allowing elements to be neatly divided into responsive sections. With this grid system, multiple columns displayed on desktops can automatically convert into stacked blocks on mobile screens without requiring manual CSS adjustments.

The structure begins with a container to maintain uniform alignment and spacing. The homepage header includes the brand name "GameHub" and a responsive navigation bar created using the navbar component. The navigation bar adapts to screen width, displaying menu links horizontally on desktops and collapsing into a toggleable mobile menu using the navbar-toggler on smaller screens. This enhances accessibility and ensures smooth navigation on all devices.

At the top, a **hero/jumbotron section** presents a welcoming title, tagline, and buttons such as **Play Now** and **Explore Games** to guide user interaction. Utility classes like text-center, py-5, fw-bold and gradient backgrounds make this section visually attractive. Bootstrap buttons (btn, btn-primary, btn-outline-light) help create clear and consistent call-to-action elements for users.

The next section uses the **Bootstrap grid system** to display GameHub features. Three feature boxes are arranged using row and col-md-4 classes, ensuring that they appear in three columns on larger screens but automatically stack into one column on mobile devices. Each feature block contains an icon, title, description, and button. Bootstrap utilities such as shadow-sm, rounded, p-4, and border enhance the visual layout and maintain uniform spacing.

The **footer section** concludes the page, containing copyright information styled using bg-dark, text-white, and text-center. Bootstrap spacing utilities like p-3 and mt-4 ensure the footer appears clean and well-structured. This footer separates itself visually from the main content, maintaining a professional appearance.

Bootstrap follows a **mobile-first development approach**, meaning designs are optimized for smaller screens

first and then enhanced for larger screens. It automatically handles media queries, ensuring responsive behavior without custom CSS. This approach improves development efficiency and ensures consistent user experience across smartphones, tablets, and desktops.

Overall, this assignment demonstrates how Bootstrap simplifies the creation of modern and responsive web pages. By using containers, navigation bars, hero sections, grid layouts, spacing utilities, and buttons, the GameHub homepage achieves a professional appearance with minimal custom coding. The final result is a clean, intuitive, and fully responsive static interface that can serve as the foundation for a complete web application.

Code :

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<title>GameHub - Play | Explore | Connect</title>

<!-- Bootstrap CSS -->
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

<style>
body {
  font-family: 'Poppins', sans-serif;
  scroll-behavior: smooth;
}
.hero {
  background: linear-gradient(90deg, #1e3c72, #2a5298);
  color: white;
  padding: 110px 20px;
}
.feature-icon {
  font-size: 40px;
  color: #0d6efd;
}
footer {
  background-color: #111;
  color: white;
  padding: 20px 0;
}
</style>
</head>

<body>

<!-- Navbar -->
<nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top shadow-sm">
<div class="container">
  <a class="navbar-brand fw-bold" href="#">GameHub</a>
  <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarNav">
    <span class="navbar-toggler-icon"></span>
  </button>
  <div class="collapse navbar-collapse" id="navbarNav">
    <ul class="navbar-nav ms-auto">
      <li class="nav-item"><a class="nav-link active" href="#">Home</a></li>
      <li class="nav-item"><a class="nav-link" href="#">Games</a></li>
      <li class="nav-item"><a class="nav-link" href="#">Community</a></li>
      <li class="nav-item"><a class="nav-link" href="#">Contact</a></li>
    </ul>
  </div>
</div>
</nav>

<!-- Hero Section -->
<section class="hero text-center">
<div class="container">
  <h1 class="display-4 fw-bold">Welcome to GameHub</h1>
  <p class="lead mt-3">Your ultimate gaming destination — play, explore and connect with gamers worldwide.</p>
  <a href="#" class="btn btn-light btn-lg mt-3 fw-bold">Play Now</a>
  <a href="#" class="btn btn-outline-light btn-lg mt-3 fw-bold">Explore Games</a>
</div>
</section>

<!-- Features Section -->
```
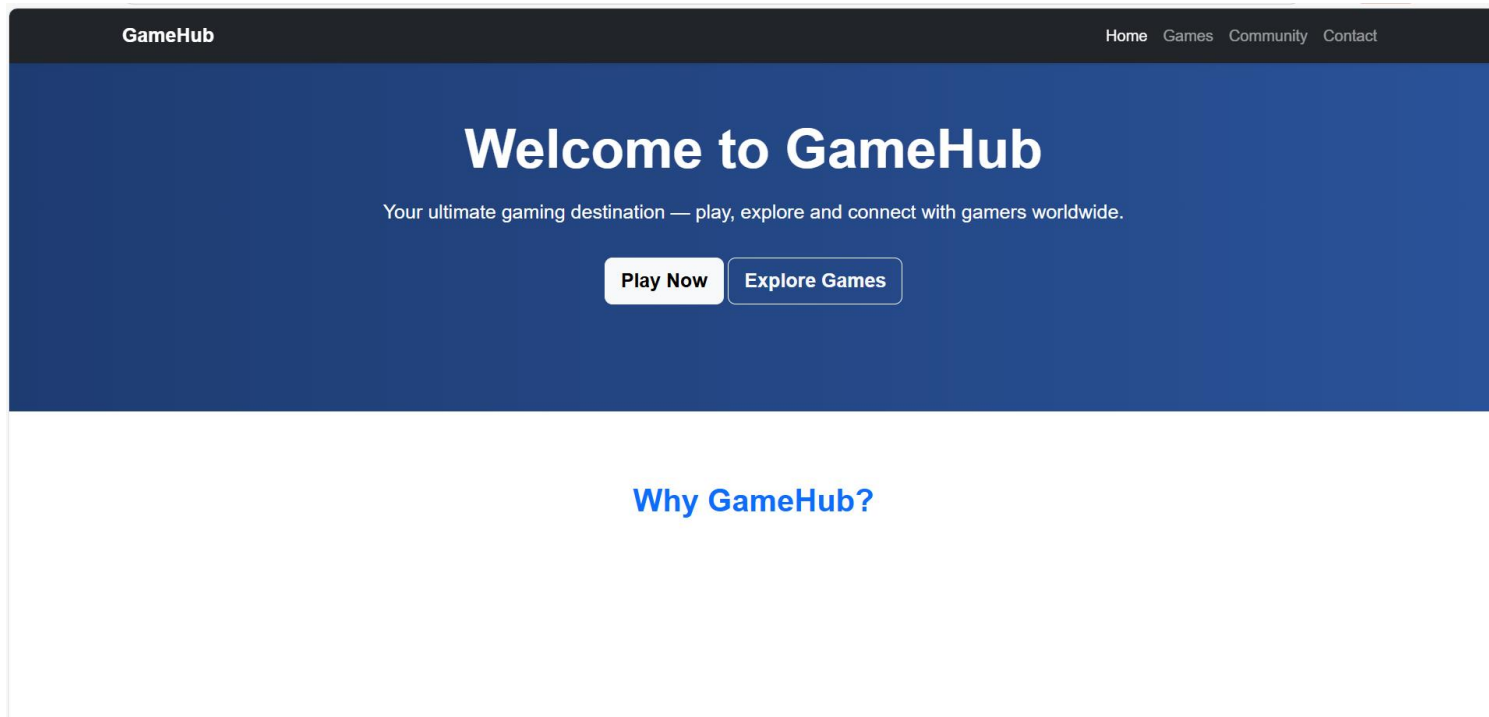
```
<section class="container my-5 py-4">
<h2 class="text-center mb-4 fw-bold text-
primary">Why GameHub?</h2>
<div class="row text-center">

  <div c
```

<section class="container my-5 py-4">
<h2 class="text-center mb-4 fw-bold text-
primary">Why GameHub?</h2>
<div class="row text-center">

Output :

Conclusion :

We successfully created a Home page with bootstrap.

Assignment 2 : Bootstrap Grid

Aim :

The aim of this assignment is to develop a responsive, multi-column game showcase interface for **GameHub** using Bootstrap's mobile-first 12-column grid system. The goal is to organize dynamic content blocks — such as game preview cards featuring images, titles, descriptions, and action buttons — in a layout that maintains consistent spacing, visual hierarchy, and alignment across devices. This assignment demonstrates how Bootstrap's container, row, and column utilities combined with card components allow scalable and aesthetically balanced structures without writing custom CSS media queries. The page should automatically adapt from a single-column stack on small screens to a multi-column grid on medium and large screens, accurately reflecting modern responsive gaming portal designs like Steam or Epic Launcher.

Theory :

Bootstrap's responsive grid system is a key feature enabling developers to construct fluid and adaptable layouts without manually configuring CSS breakpoints. In this assignment, the grid system is applied to develop a game catalogue interface for GameHub that displays a series of game cards in a structured and consistent manner. The container class provides proper horizontal padding and centers the layout, while rows and columns divide the page space and distribute elements into uniform proportions. Bootstrap divides each row into 12 columns, and classes such as col-md-6 and col-lg-4 dictate how much width each card occupies depending on the screen size. For example, col-lg-4 allows three game cards per row on large screens, col-md-6 creates a two-column layout on medium screens, and smaller devices default to a fluid one-column layout — all without explicit media queries. Each game item is represented using Bootstrap's card component, which provides a clean structure including a game preview image (card-img-top), title, description, and a "Play Now" button. The g-4 class is used to maintain uniform gutter spacing between columns, enhancing readability and preserving aesthetic balance. Utility classes such as shadow-sm, rounded, border-0, and text-primary introduce subtle shadows, rounded corners, clean borders, and consistent text styles that enhance visual clarity without additional CSS. A gradient-styled header section introduces the GameHub theme and aligns with modern game portal UI patterns, providing a visually compelling entry point for the user. The footer utilizes bg-dark and text-white utilities to create contrast and closure, reinforcing design symmetry.

Bootstrap's mobile-first philosophy ensures that the layout renders optimally across smartphones, tablets, laptops, and larger monitors. This structured grid-based approach demonstrates how front-end frameworks support scalable and maintainable UI development, especially for platforms presenting frequent repetitive content such as online game stores, media libraries, and digital marketplaces. By completing this assignment, the understanding of responsive card-based layout design, grid structuring, and Bootstrap utilities is strengthened, equipping learners with practical knowledge applicable to production-level gaming portals.

Code :

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<title>GameHub – Game Showcase</title>
```

```html
<!-- Bootstrap CSS -->
<link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/d
ist/css/bootstrap.min.css" rel="stylesheet"/>

<style>
body {
  font-family: 'Poppins', sans-serif;
  background-color: #f8f9fa;
}
.card img {
  height: 200px;
  object-fit: cover;
}
.page-header {
  background: linear-gradient(90deg, #6610f2,
#6f42c1);
  color: white;
  padding: 60px 0;
  text-align: center;
}
</style>
</head>

<body>

<!-- Header Section -->
<header class="page-header mb-5 shadow-sm">
  <div class="container">
    <h1 class="fw-bold">GameHub – Explore
Trending Games</h1>
    <p class="lead">Discover exciting adventures,
puzzles, and brain-challenging games.</p>
  </div>
</header>

<!-- Grid Section -->
<div class="container mb-5">
  <div class="row g-4">

    <!-- Tic Tac Toe -->
    <div class="col-lg-4 col-md-6">
      <div class="card shadow-sm border-0">
        <img
src="https://img.gamedistribution.com/abebecfa89b6
46448c834963627b325d-512x512.jpeg" class="card-
img-top" alt="Tic Tac Toe" />
        <div class="card-body">
          <h5 class="card-title fw-bold text-
primary">Tic Tac Toe</h5>
          <p class="card-text text-muted">Classic X-O
strategy challenge. Outsmart your opponent!</p>
          <a href="#" class="btn btn-outline-primary
btn-sm">Play Now</a>
```

```html
      </div>
    </div>
  </div>

    <!-- Chess -->
    <div class="col-lg-4 col-md-6">
      <div class="card shadow-sm border-0">
        <img
src="https://static.vecteezy.com/system/resources/previe
ws/018/871/720/original/king-and-soldier-chess-pieces-
on-transparent-background-leadership-concept-png.png"
class="card-img-top" alt="Chess" />
        <div class="card-body">
          <h5 class="card-title fw-bold text-
primary">Chess</h5>
          <p class="card-text text-muted">A timeless battle
of logic and intelligence.</p>
          <a href="#" class="btn btn-outline-primary btn-
sm">Play Now</a>
        </div>
      </div>
    </div>

    <!-- Number Puzzle -->
    <div class="col-lg-4 col-md-6">
      <div class="card shadow-sm border-0">
        <img
src="https://tse4.mm.bing.net/th/id/OIP.34XhO9kOhDa
Gy3ah4n5K0wHaHa?pid=Api&P=0&h=180"
class="card-img-top" alt="Number Puzzle" />
        <div class="card-body">
          <h5 class="card-title fw-bold text-
primary">Number Puzzle</h5>
          <p class="card-text text-muted">Test your logic
with exciting number-shifting puzzles.</p>
          <a href="#" class="btn btn-outline-primary btn-
sm">Play Now</a>
        </div>
      </div>
    </div>

    <!-- Brain Games -->
    <div class="col-lg-4 col-md-6">
      <div class="card shadow-sm border-0">
        <img
src="https://www.besttechie.com/content/images/wordpr
ess/2020/05/brain-games.jpeg" class="card-img-top"
alt="Brain Games" />
        <div class="card-body">
          <h5 class="card-title fw-bold text-primary">Brain
Games</h5>
          <p class="card-text text-muted">Sharpen memory,
logic, and reflexes with mini challenges.</p>
          <a href="#" class="btn btn-outline-primary btn-
```

```html
sm">Play Now</a>
      </div>
    </div>
  </div>

  <!-- Cricket Game -->
  <div class="col-lg-4 col-md-6">
    <div class="card shadow-sm border-0">
      <img
src="https://tse4.mm.bing.net/th/id/OIP.e2P3ReDB
MC5G87UnoHrt3wHaEM?pid=Api&P=0&h=180"
class="card-img-top" alt="Cricket Game" />
      <div class="card-body">
        <h5 class="card-title fw-bold text-
primary">Cricket Game</h5>
        <p class="card-text text-muted">Hit
boundaries and chase runs in this cricket
challenge!</p>
        <a href="#" class="btn btn-outline-primary
btn-sm">Play Now</a>
      </div>
    </div>
  </div>

  <!-- Car Racing -->
  <div class="col-lg-4 col-md-6">
    <div class="card shadow-sm border-0">
      <img
src="https://lh4.ggpht.com/DnegeWoA2nbLodwAI9
42HiEomkdHHWTG6pRBpV3CjnQkAE1LODW5-
aJ93xWa8fDEk6c=h900" class="card-img-top"
alt="Car Racing" />
      <div class="card-body">
        <h5 class="card-title fw-bold text-
primary">Car Racing</h5>
        <p class="card-text text-muted">Speed
through tracks and become the racing champion.</p>
        <a href="#" class="btn btn-outline-primary
btn-sm">Play Now</a>
      </div>
    </div>
  </div>

  <!-- Memory Match -->
  <div class="col-lg-4 col-md-6">
    <div class="card shadow-sm border-0">
      <img
src="https://img.gamedistribution.com/854fd8048c8
14acaa86b0faffe364290-512x512.jpeg" class="card-
img-top" alt="Memory Match" />
      <div class="card-body">
        <h5 class="card-title fw-bold text-
primary">Memory Match</h5>
        <p class="card-text text-muted">Flip cards
and test your memory skills!</p>
        <a href="#" class="btn btn-outline-primary btn-
sm">Play Now</a>
      </div>
    </div>
  </div>

  <!-- Sudoku -->
  <div class="col-lg-4 col-md-6">
    <div class="card shadow-sm border-0">
      <img
src="https://wallpaperaccess.com/full/9692889.png"
class="card-img-top" alt="Sudoku" />
      <div class="card-body">
        <h5 class="card-title fw-bold text-
primary">Sudoku</h5>
        <p class="card-text text-muted">A classic grid-
based challenge to boost logical thinking.</p>
        <a href="#" class="btn btn-outline-primary btn-
sm">Play Now</a>
      </div>
    </div>
  </div>

  </div>
</div>

<!-- Footer -->
<footer class="bg-dark text-white text-center py-3">
  <p class="mb-0">&copy; 2025 GameHub | Designed
by Samyak Kedari</p>
</footer>

<!-- Bootstrap JS -->
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/
bootstrap.bundle.min.js"></script>
</body>
</html>
```
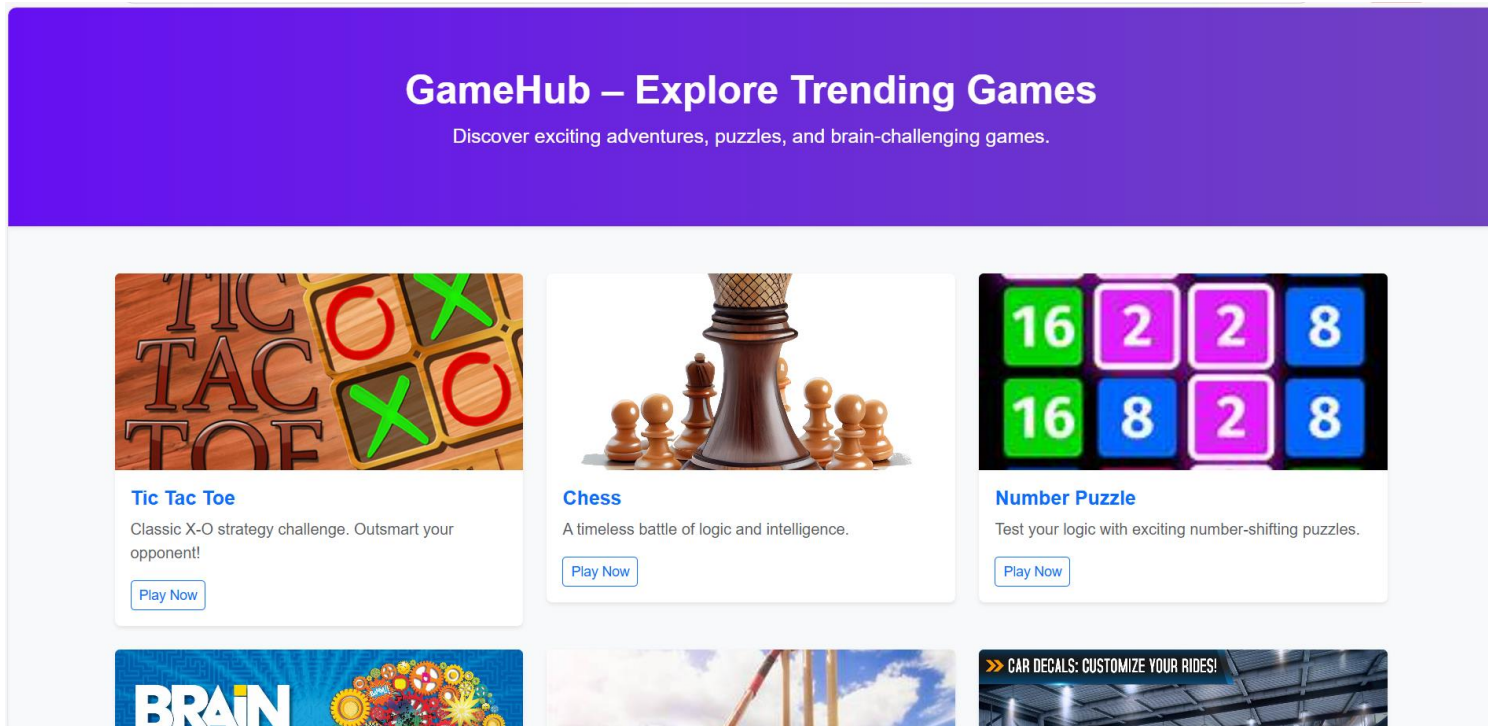
Output :

Conclusion :

We successfully implemented Bootstrap grid.

Assignment 3 : Bootstrap form and table

Aim :

The aim of this assignment is to integrate Bootstrap's form and table components into a gaming-based web interface for GameHub. The objective is to redesign the Checkout and Player Profile sections using Bootstrap's responsive form utilities like form-control, form-group, and validation classes. Additionally, cart and order history tables are enhanced using Bootstrap table utilities such as table-striped, table-bordered, and table-responsive to achieve a professional data presentation layout.

Theory :

Bootstrap streamlines modern web development by providing pre-designed, responsive components that ensure consistent visual structure and smooth user interaction across all devices. In this assignment, Bootstrap is applied to design interactive forms and dynamic tables for a gaming e-commerce experience within GameHub.

The Checkout Form is built using Bootstrap's form utils like form-group and form-control, which standardize input fields for consistent spacing, alignment, and accessibility. By applying Bootstrap grid classes such as col-md-6 and col-md-4, the form adjusts automatically based on screen size — displaying side-by-side fields on larger screens and stacked fields on mobile. Furthermore, validation classes like needs-validation, invalid-feedback, and was-validated enhance user guidance by indicating missing or incorrect fields without writing complex JavaScript manually.

The Player Profile Form follows the same structured flow, ensuring uniform input styling and alignment for player details such as gamer tag, email, and gaming role. This ensures a seamless and professional interface for player account management.

To present purchased and carted games, Bootstrap tables are used with style classes like table-striped, table-bordered, and table-hover for better readability and UI experience. The table-responsive wrapper ensures smooth scrolling on smaller screens, preventing layout breaking. Order status tags utilize Bootstrap badges, adding a visual indicator for game delivery status.

Overall, this assignment demonstrates how Bootstrap accelerates UI development by offering pre-styled components for form handling and data display. The combination of responsive forms and tables delivers a modern, structured GameHub interface without the need for heavy CSS coding, ensuring a clean, robust, and interactive web page aligned with professional design practices.

Code :

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <title>Bootstrap Form and Table Integration</title>

  <!-- Bootstrap CSS -->
  <link

href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css"
    rel="stylesheet"
 />

  <style>
    body {
      font-family: 'Poppins', sans-serif;
      background-color: #f8f9fa;
    }
    .section-title {
      text-align: center;
      margin-top: 40px;
      margin-bottom: 25px;
      font-weight: 600;
      color: #0d6efd;
    }
  </style>
</head>

<body>
  <div class="container my-5">
    <!-- Checkout Form Section -->
    <h2 class="section-title"> Checkout Form</h2>
    <form class="shadow p-4 rounded bg-white needs-validation" novalidate>
      <div class="row mb-3">
        <div class="col-md-6">
          <label class="form-label">Full Name</label>
          <input type="text" class="form-control" required />
          <div class="invalid-feedback">Please enter your full name.</div>
        </div>
        <div class="col-md-6">
          <label class="form-label">Email</label>
          <input type="email" class="form-control" required />
          <div class="invalid-feedback">Please enter a valid email address.</div>
        </div>
      </div>

      <div class="row mb-3">
        <div class="col-md-6">
          <label class="form-label">Address</label>
          <input type="text" class="form-control" required />
```

```
      <div class="invalid-feedback">Please enter
your shipping address.</div>

    </div>

    <div class="col-md-6">

      <label class="form-label">City</label>

      <input type="text" class="form-control"
required />

      <div class="invalid-feedback">Please enter
your city.</div>

    </div>

  </div>


  <div class="row mb-3">

    <div class="col-md-4">

      <label class="form-label">Pincode</label>

      <input type="text" class="form-control"
required />

    </div>

    <div class="col-md-4">

      <label class="form-label">Phone
Number</label>

      <input type="text" class="form-control"
required />

    </div>

    <div class="col-md-4">

      <label class="form-label">Payment
Mode</label>

      <select class="form-select" required>

        <option selected
disabled>Choose...</option>

        <option>Credit Card</option>

        <option>Debit Card</option>

        <option>UPI</option>

        <option>Cash on Delivery</option>

      </select>

    </div>
```

```
    </div>


    <button type="submit" class="btn btn-success
w-100 mt-3 fw-bold">

      Place Order

    </button>

  </form>


  <!-- Profile Form Section -->

  <h2 class="section-title mt-⟩⫪ User Profile
Form</h2>

  <form class="shadow p-4 rounded bg-white">

    <div class="row mb-3">

      <div class="col-md-6">

        <label class="form-label">First
Name</label>

        <input type="text" class="form-control" />

      </div>

      <div class="col-md-6">

        <label class="form-label">Last
Name</label>

        <input type="text" class="form-control" />

      </div>

    </div>


    <div class="row mb-3">

      <div class="col-md-6">

        <label class="form-label">Email</label>

        <input type="email" class="form-control" />

      </div>

      <div class="col-md-6">

        <label class="form-label">Phone</label>

        <input type="text" class="form-control" />

      </div>
```

```html
      </div>

      <div class="row mb-3">
        <div class="col-md-6">
          <label class="form-label">Date of
Birth</label>
          <input type="date" class="form-control" />
        </div>
        <div class="col-md-6">
          <label class="form-
label">Occupation</label>
          <input type="text" class="form-control" />
        </div>
      </div>


      <button class="btn btn-primary w-100 fw-bold
mt-2">Update Profile</button>
    </form>


    <!-- Cart Table -->
    <h2 class="section-title mt-5">. Cart
Summary</h2>
    <div class="table-responsive shadow rounded">
      <table class="table table-striped table-bordered
align-middle">
        <thead class="table-dark">
         <tr>
          <th>Product</th>
          <th>Price (₹)</th>
          <th>Quantity</th>
          <th>Total (₹)</th>
         </tr>
        </thead>
        <tbody>

          <tr>
           <td>Paracetamol</td>
           <td>40</td>
           <td>2</td>
           <td>80</td>
          </tr>
          <tr>
           <td>Vitamin C Tablets</td>
           <td>120</td>
           <td>1</td>
           <td>120</td>
          </tr>
          <tr>
           <td>Hand Sanitizer</td>
           <td>60</td>
           <td>3</td>
           <td>180</td>
          </tr>
        </tbody>
      </table>
    </div>


    <!-- Order History Table -->
    <h2 class="section-title mt-5">Order
History</h2>
    <div class="table-responsive shadow rounded">
      <table class="table table-hover table-bordered
align-middle">
        <thead class="table-primary">
         <tr>
          <th>Order ID</th>
          <th>Date</th>
          <th>Total Amount (₹)</th>
```

```html
      <th>Status</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>#1021</td>
      <td>2025-10-02</td>
      <td>420</td>
      <td><span class="badge bg-success">Delivered</span></td>
    </tr>
    <tr>
      <td>#1022</td>
      <td>2025-10-15</td>
      <td>250</td>
      <td><span class="badge bg-warning text-dark">In Progress</span></td>
    </tr>
    <tr>
      <td>#1023</td>
      <td>2025-10-28</td>
      <td>180</td>
      <td><span class="badge bg-danger">Cancelled</span></td>
    </tr>
  </tbody>
</table>
</div>
</div>

<!-- Bootstrap JS -->
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

<!-- Bootstrap Validation Script -->
<script>
  (() => {
    "use strict";
    const forms = document.querySelectorAll(".needs-validation");
    Array.from(forms).forEach((form) => {
      form.addEventListener(
        "submit",
        (event) => {
          if (!form.checkValidity()) {
            event.preventDefault();
            event.stopPropagation();
          }
          form.classList.add("was-validated");
        },
        false
      );
    });
  })();
</script>
</body>
</html>
```

Output :

Checkout - Purchase Game

Player Name	Email
Game Delivery Email	City
Pincode	Phone	Payment Mode
		Choose...

Confirm Purchase

Player Profile

Gamer Tag	Email
Gaming Role	Date of Birth
Sniper / Racer / Strategist	dd-mm-yyyy

Game Cart

Game	Price	Qty	Total
Tic Tac Toe	₹50	1	₹50
Chess	₹120	1	₹120

Order History

Order ID	Date	Total	Status
#G1021	2025-11-01	₹170	Delivered
#G1028	2025-11-02	₹90	Processing

Conclusion :

We successfully implemented Bootstrap form and table.

Assignment 4 : Responsive Design Using Bootstrap

Aim : To design and implement a fully responsive layout for the GameHub gaming portal using the Bootstrap Grid system and utility classes, ensuring seamless user experience across mobile, tablet, and desktop screens.

Theory :

1. Introduction to Responsive Web Design

Responsive Web Design (RWD) is an approach to web development where a website's layout, images, and interactive elements automatically adjust to fit various screen sizes and devices. The core idea is to provide an optimal viewing and interaction experience easy reading, minimal resizing, and smooth navigation across a wide range of devices, from mobile phones to desktop monitors.

The term was popularized by Ethan Marcotte in 2010 and has since become a web development standard due to the increasing diversity of devices and screen resolutions.

2. Key Principles of Responsive Design

- **Fluid Grids**

  Uses percentage-based widths instead of fixed pixels, allowing layout components to resize proportionally.

- **Flexible Images**

  Images resize automatically to prevent overflow and maintain aspect ratio.

- **Media Queries**

  Apply different styling rules based on screen size, device width, height, and orientation.

- **Mobile-First Approach**

  Design starts from smaller screens and progressively enhances for larger devices.

- **Viewport Meta Tag**

  Ensures the browser renders the page according to device width.

3. Importance of Responsive Design

- **Enhanced UX: Better readability and navigation across devices**
- **Higher Search Ranking: Google prioritizes mobile-friendly websites**
- **Universal Compatibility: Works smoothly across all screen types**
- **Cost-Efficient: One website fits all platforms, avoiding duplicate development**
- **Future-Ready: Adapts easily to new device sizes**
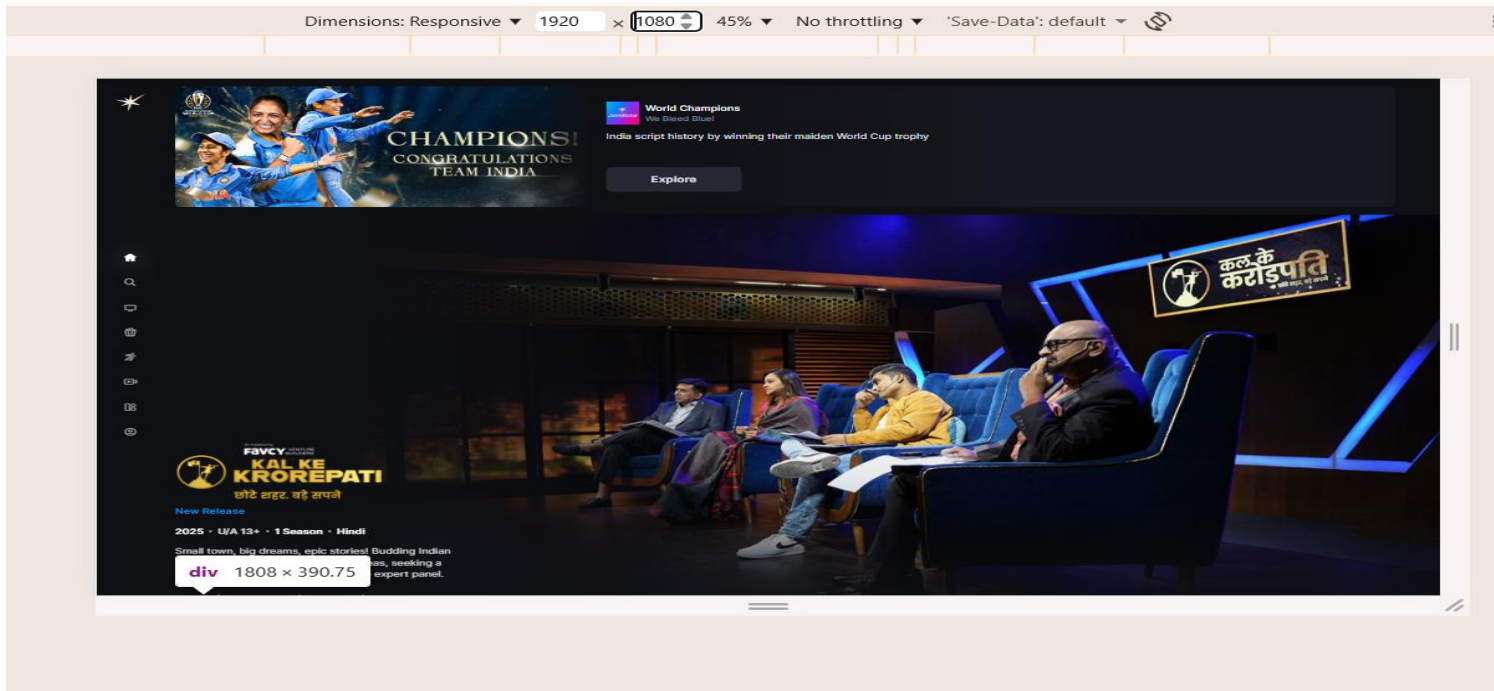
4. Case Study: Dribbble.com

- **Website Chosen:** https://dribbble.com
- **Purpose:** A platform for designers to showcase creative work, find inspiration, and connect with others.

4.1 Testing Methodology

I tested Dribbble.com on various screen sizes and devices using Chrome DevTools (responsive mode) .
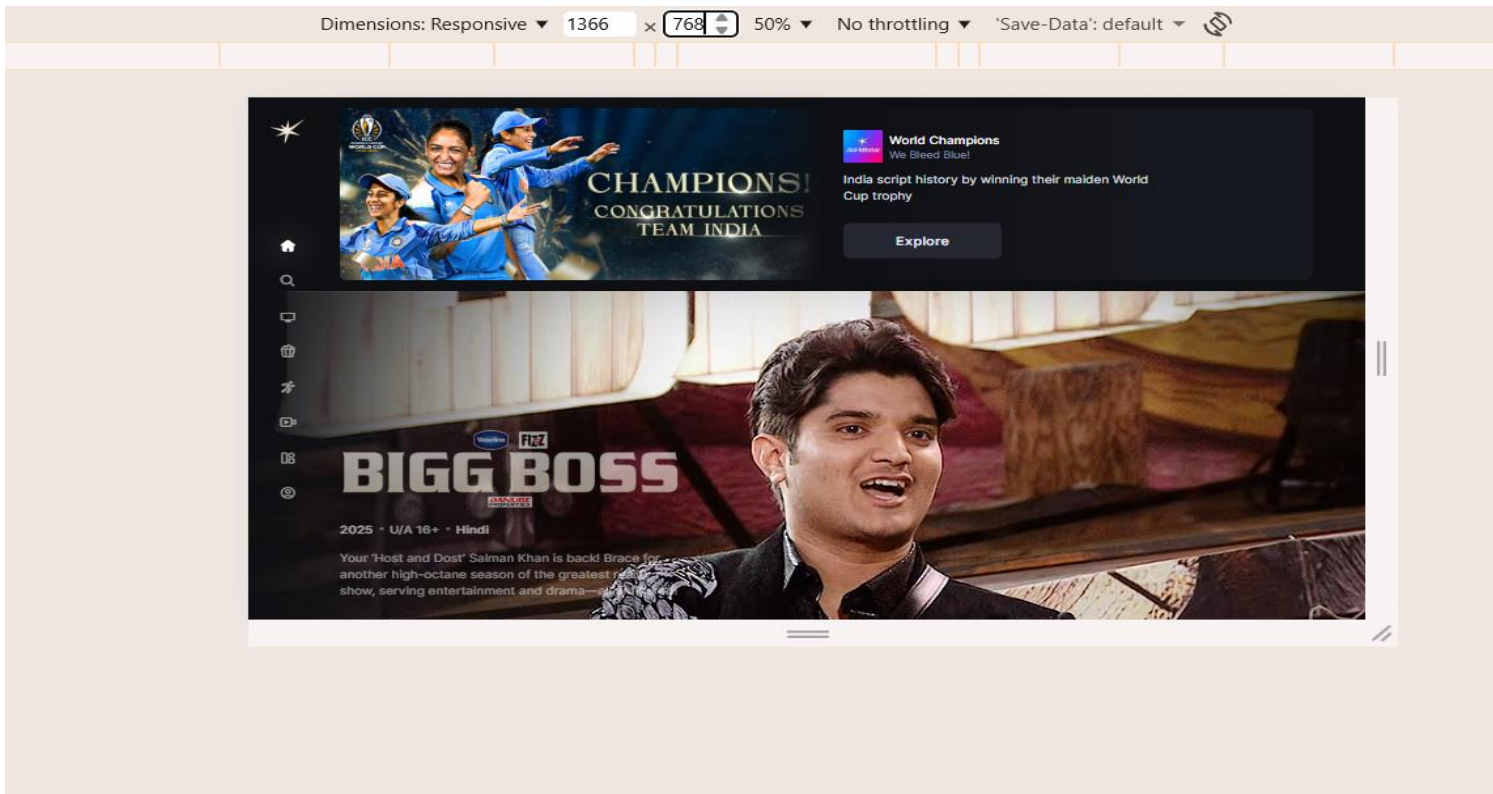
4.2 Observations

Desktop (1920×1080)

Layout: Full-width homepage layout with multiple content rows, banners, and movie thumbnails per line, offering a cinematic and visually rich interface.

Navigation: Top navigation bar remains fully visible, showing categories like Home, TV, Movies, Sports, and Kids without collapsing, allowing quick access to all sections.

Images & Media: Full-width hero carousel loads in HD; thumbnails and posters appear crisp even on ultra-wide screens.

Overall Experience: Excellent — cinematic experience, easy browsing, smooth animations & premium look
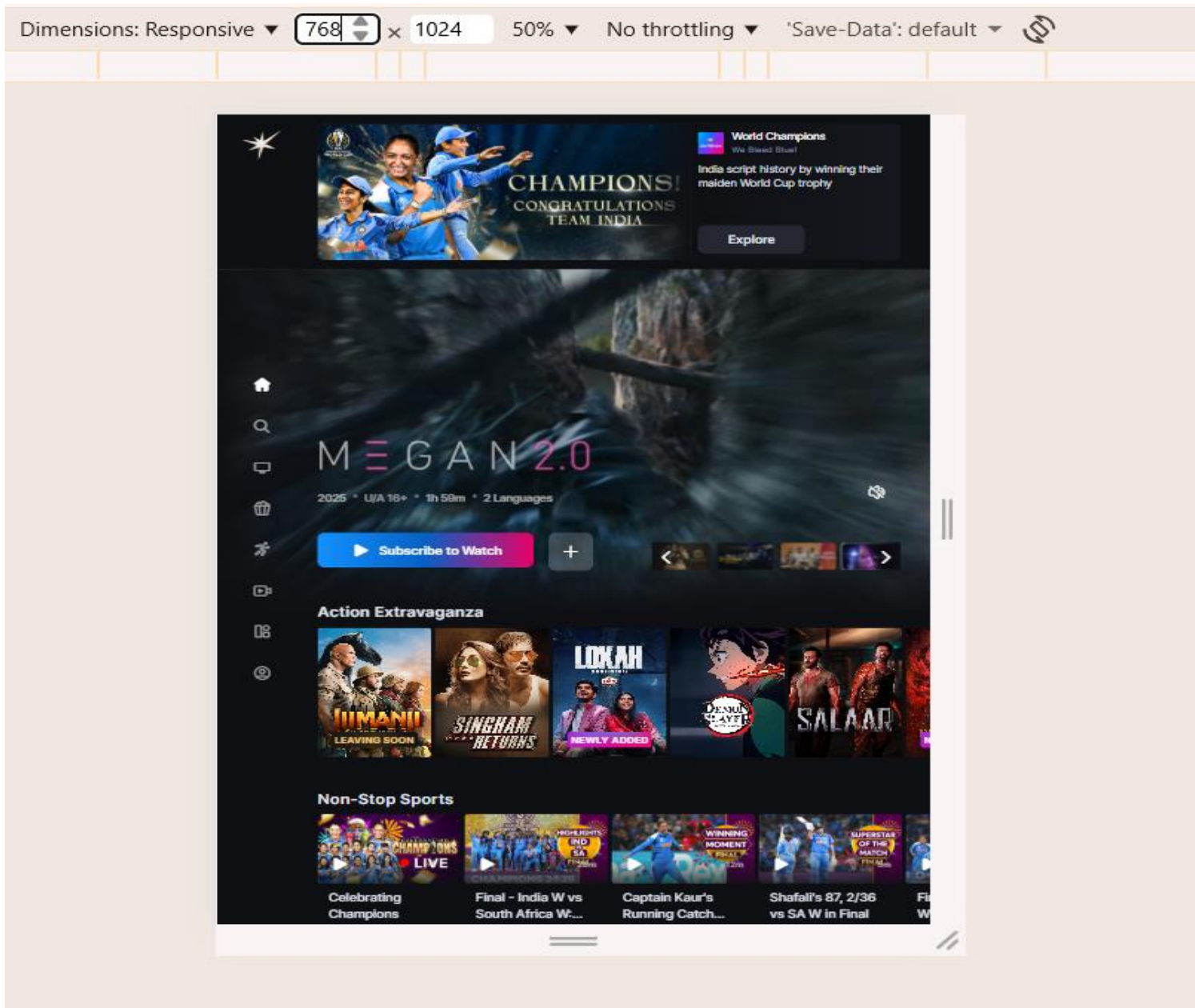
Laptop (1366×768)

Layout: Slightly compact version of desktop, still showing 4–5 thumbnails per row. Scrollable sections remain smooth and easy to navigate.

Navigation: Navigation bar remains visible without collapsing. Search, profile, and menu

icons scale down neatly.

 Images & Media: Video previews and posters remain sharp, scaling proportionally to the

screen.

 Overall Experience: Very good — feels like desktop experience but in a slightly smaller
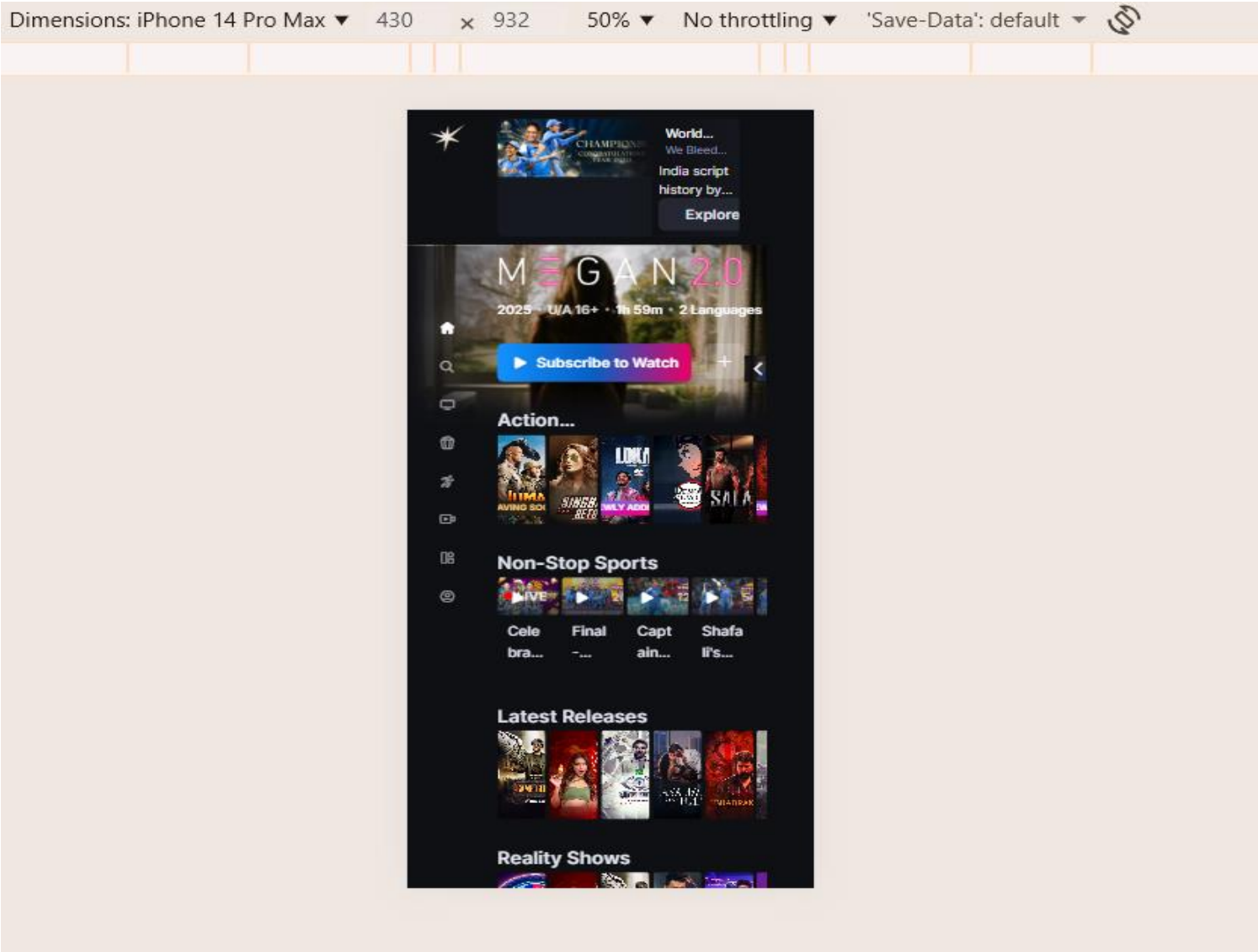
frame.

Tablet (768×1024)

Layout: Switches to 2-3 thumbnails per row, increasing size for easier tapping. Vertical scrolling becomes more emphasized.

Navigation: Top menu becomes more compact. Some sections may move into a dropdown/hamburger for clarity.

 Images & Media: Banners and video cards resize responsively, maintaining quality without overflow.

Overall Experience: Smooth — touch-friendly UI, easily browsable, ideal for handheld streaming.

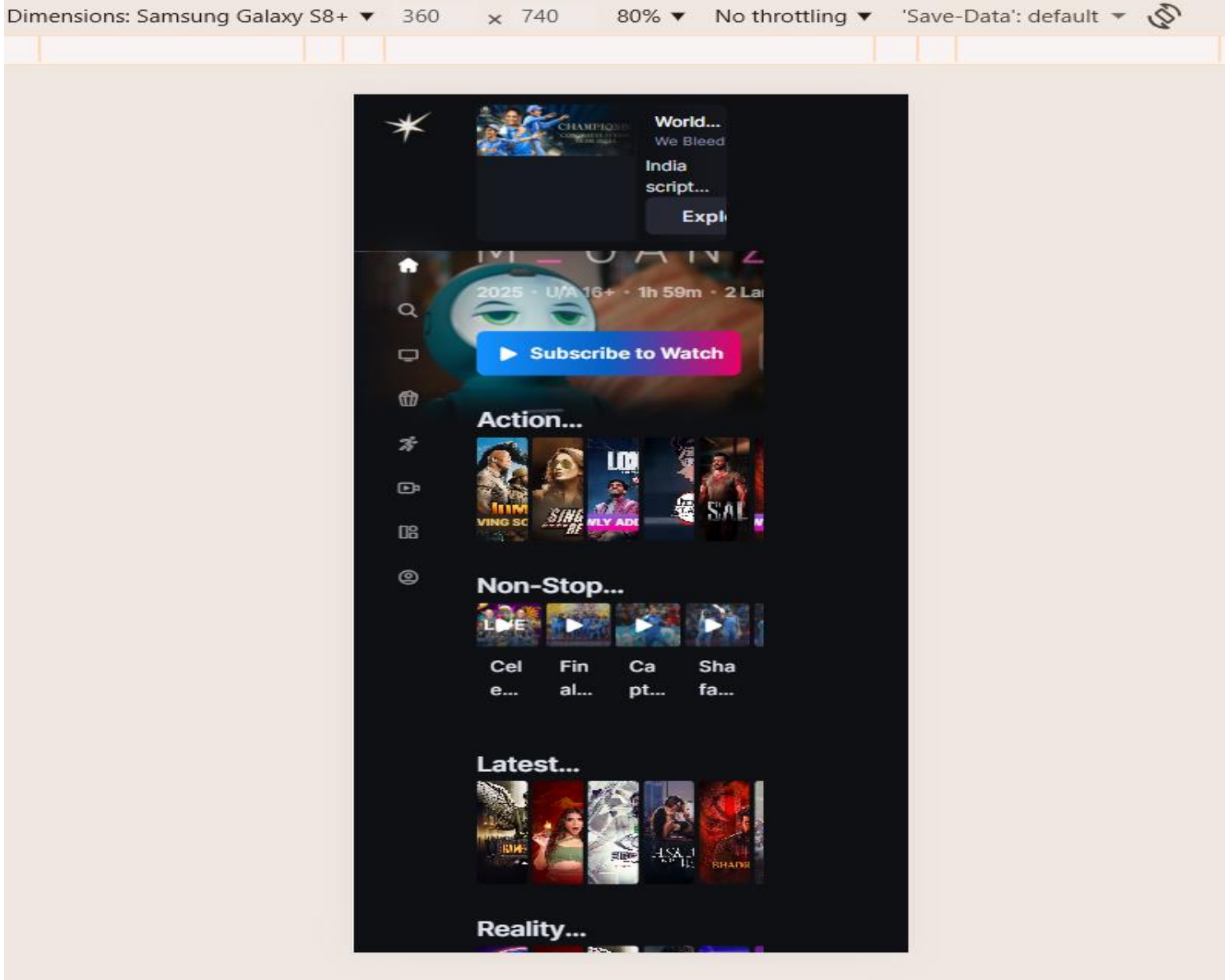**Mobile – iPhone 14 Pro Max (430x932)**

Layout: Single-column feed layout with large touch-friendly cards and scrollable rows. Home screen highlights trending & live content first.

Navigation: Bottom navigation bar appears with main tabs — Home, Search, Downloads, More. Top menu replaced by hamburger icon.

Images & Media: Posters scale full-width, videos play in full-screen smoothly.

Overall Experience: Excellent — fast, fluid, thumb-friendly and optimized for mobile binge-watching.

Mobile – Samsung Galaxy S8+ (360x740)

Layout: Full-screen content feed continues but components resize slightly smaller to fit compact display. Buttons become larger for touch support.

Navigation: Fully optimized mobile nav; hamburger and bottom navigation ensure clean UI.

Images & Media: Streaming works smoothly; adaptive image/video resolution ensures no horizontal scrolling.

Overall Experience: Smooth — UI remains clean, loading slightly slower on weaker connections but overall user-friendly.

5. Breakpoint Description

Breakpoint	Description
1920 px – 1080 px	Desktop Screen
1366 px – 768 px	Laptop Screen
768 px – 1024 px	Tablet Screen
430 px – 932 px	iPhone Screen (Large)
360 px – 740 px	Samsung S8 + Screen (Normal)

Code :

```html
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<title>GameHub | Responsive UI Demo with Bootstrap</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet"/>

<style>
body {
  font-family: 'Poppins', sans-serif;
  background-color: #f8f9fa;
  color: #000;
}
.demo-section {
  background: #ffffff;
  border-radius: 10px;
  box-shadow: 0 0 10px rgba(0,0,0,0.1);
  padding: 20px;
  margin-bottom: 30px;
}
.demo-box {
  background: #0d6efd;
  color: white;
  text-align: center;
  padding: 40px 10px;
  border-radius: 8px;
}
</style>
</head>

<body>
<div class="container my-5">

<h1 class="text-center text-primary fw-bold mb-4">
 GameHub UI Components Showcase 🎮
</h1>

<section class="demo-section">
<h4 class="text-secondary fw-bold mb-3">□ GameHub Grid Layout (Game Cards)</h4>
<p class="text-muted">
This grid represents how game tiles can appear across devices.
</p>

<div class="row g-3">
<div class="col-lg-3 col-md-4 col-sm-6"><div class="demo-box">Game Tile 1</div></div>
<div class="col-lg-3 col-md-4 col-sm-6"><div class="demo-box">Game Tile 2</div></div>
<div class="col-lg-3 col-md-4 col-sm-6"><div class="demo-box">Game Tile 3</div></div>
<div class="col-lg-3 col-md-4 col-sm-6"><div class="demo-box">Game Tile 4</div></div>
</div>
</section>

<section class="demo-section">
<h4 class="text-secondary fw-bold mb-3">□ Action Menu using Flexbox</h4>
<p class="text-muted">
Flex utilities used to align primary game actions.
</p>

<div class="d-flex justify-content-around align-items-center flex-wrap bg-light p-4 rounded">
<div class="demo-box m-2">Play</div>
<div class="demo-box m-2">Store</div>
<div class="demo-box m-2">Profile</div>
</div>
</section>

<section class="demo-section">
<h4 class="text-secondary fw-bold mb-3">□ Text & Spacing Utilities</h4>
<p class="text-muted">
Text formatting for game info, announcements, & credits.
</p>

<div class="p-4 bg-light rounded">
<h5 class="text-center text-primary mb-3">GameHub Text Styles</h5>

<p class="text-start m-2">
<strong>Left:</strong> Game description & features.
</p>

<p class="text-center p-2 bg-white rounded shadow-sm">
<strong>Center:</strong> Event alerts, updates, and rewards notice.
</p>

<p class="text-end mt-3 pe-3 text-muted">
<strong>Right:</strong> Credits & version.
</p>
</div>
</section>

<section class="demo-section text-center">
```

```html
<h4 class="text-secondary fw-bold mb-3">📱
Responsive Demo</h4>
<p class="text-muted">
Resize your screen to test responsiveness like PC,
Tablet, Mobile.
</p>

<div class="row gy-3">
<div class="col-lg-6 col-md-12"><div class="demo-box">Desktop View (50%)</div></div>
<div class="col-lg-6 col-md-12"><div class="demo-box bg-success">Mobile Full Width</div></div>
</div>
</section>
```

```html
<footer class="bg-dark text-white text-center py-3 rounded mt-5">
<p class="mb-0">&copy; 2025 GameHub | UI Demo</p>
</footer>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

Output :

GameHub UI Components Showcase 🎮

1 GameHub Grid Layout (Game Cards)

This grid represents how game tiles can appear across devices.

| Game Tile 1 | Game Tile 2 | Game Tile 3 | Game Tile 4 |

2 Action Menu using Flexbox

Flex utilities used to align primary game actions.

Play   Store   Profile

3 **Text & Spacing Utilities**

Text formatting for game info, announcements, & credits.

GameHub Text Styles

Left: Game description & features.

Center: Event alerts, updates, and rewards notice.

Right: Credits & version.

4 **Responsive Demo**

Resize your screen to test responsiveness like PC, Tablet, Mobile.

Desktop View (50%)

Mobile Full Width

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Conclusion:

We successfully implemented and tested Responsive Design Using Bootstrap.