**Moffat Bay Island Marina: TDD Assignment**

**1 - Introduction**

**1.1 Purpose**

The purpose of this document is to outline the technical design and development plan for the Moffat Bay Island Marina website. The website will allow customers to view marina information, register, log in, reserve long-term slips based on boat size, and manage their reservations. It will also include functionality for waitlists when slips are unavailable. The document will serve as a blueprint for the development, testing, and deployment of the website.

**1.2 Terminology**

* **Slip**: A designated space within the marina where a boat can be docked.
* **Long-Term Slip**: A slip rented for an extended period (e.g., monthly).
* **Reservation**: A confirmed booking for a specific slip for a specific boat, starting on a given date.
* **Wait List**: A list of customers who want to reserve a slip size that is currently fully booked.
* **Customer ID**: A unique identifier for each registered user.
* **Check-in Date**: The date on which the customer's slip rental period begins.
* **Harbormaster**: The individual responsible for managing the marina's operations.
* **VHF Channel**: A radio frequency used for maritime communication.
* **ERD**: Entity Relationship Diagram - A visual representation of the database structure.
* **TDD**: Technical Design Document - This is a comprehensive document outlining the technical specifications of the project.
* **QA**: Quality Assurance - The process of testing and ensuring the quality of the software.

**1.3 User Personas**

Persona 1: The Seasoned Boater - **"Captain Carol"**

* Demographics: Female, 62 years old, recently retired.
* Technical Proficiency: Comfortable with basic web navigation, online banking, and email.
* Goals: Secure a reliable long-term slip for her 40ft sailboat. She wants a simple, easy-to-use system to manage her reservation. Values clear communication and reliable information.
* Frustrations: Complex or confusing websites. Difficulty contacting the marina with questions.
* Quote: "I just want to find a slip that fits my boat and be able to easily renew my reservation each month."

Persona 2: The New Boat Owner - **"First Mate Frank"**

* Demographics: A man, 35 years old, recently purchased his first boat.
* Technical Proficiency: Very comfortable with technology, using multiple devices daily.
* Goals: Find a marina that's convenient and affordable. Wants to understand all the costs and rules associated with a slip. Prefers online support and self-service options.
* Frustrations: Hidden fees, unclear reservation processes, lack of online support.
* Quote: "I'm new to boating, so I need a website that explains everything clearly and lets me manage my reservation online."

Persona 3: The Occasional Boater - **"Weekend Wendy"**

* Demographics: Female, 48 years old, uses her boat occasionally for weekend trips.
* Technical Proficiency: Moderate technology skills, primarily using a smartphone.
* Goals: To easily find a convenient and affordable slip for her 26ft boat. Wants a simple website to make reservations.
* Frustrations: Websites that are not mobile friendly and websites that are confusing.
* Quote: "I need a website that's easy to use from my phone to book a slip quickly."

Persona 4: Marina Manager – **"Jordan Reynolds"**

* Demographics: Male, 45 years old, Worked in Marina operations for 15 years.
* Technical Proficiency: Strong technology skills, Prefers is desktop computer to complete tasks.
* Goals: Run a efficient and well managed marina with the capability to maintain effective communication with boaters.
* Frustrations: Issues with communication when it comes to getting a hold of customers about concerns or when customers make last second changes.
* Quote: “I run a tight ship and want to make sure that I can provide a positive experience to those coming to use the marina”

**1.4 User Stories**

*Captain Carol* ***(Seasoned Boater)****:*

1. "As Captain Carol, I want to be able to easily log in to the website using my email and password so that I can manage my slip reservation." (Story Points: 2)

2. "As Captain Carol, I want to view the 'About Us' page and easily see the cost of a 40ft slip so that I can understand the monthly expenses." (Story Points: 1)

3. "As Captain Carol, I want to view my existing reservation details (boat name, size, slip size, check-in date) on the 'Reservation Look Up' page using my email address so I can confirm the details of my reservation." (Story Points: 3)

*First Mate Frank* ***(New Boat Owner)****:*

4. "As First Mate Frank, I want to register for an account by providing my email, name, telephone, boat details, and password so that I can reserve a slip." (Story Points: 5)

5. "As First Mate Frank, I want to reserve a 40ft slip for my 34ft boat by selecting the boat length and check-in date, so I can secure a long-term spot at the marina." (Story Points: 5)

6. "As First Mate Frank, I want to see a reservation confirmation summary, including the monthly cost, before submitting my reservation so that I can understand the financial commitment." (Story Points: 3)

*Weekend Wendy* ***(Occasional Boater):***

7. "As Weekend Wendy, I want to be able to easily access the 'Contact Us' page on my phone so that I can quickly find the VHF channel number for the harbormaster." (Story Points: 1)

8. "As Weekend Wendy, if no 26ft slips are available, I want to be offered the option to be added to the waitlist so that I can be notified when a suitable slip becomes available." (Story Points: 3)

9. "As Weekend Wendy, I want to cancel my pending reservation by clicking a button on the reservation confirmation summary page so I can undo it if I change my mind." (Story Points: 2)

*Jordan Reynolds* ***(Marina Manager):***

10. “As the manager I need to be able to see what reservations have been put in and what availability we still have.”

11. “As the manager I need to be able to get ahold of users of the marina in case of emergency so having some form of contact information from the user is a must.”

12. “ As the manager I need to be able to make cancelations on reservations.”

**1.5 Work Estimations (ToDo List)**

***Backend Development:***

[ ] Design and implement user registration and login functionality (8 story points)

[ ] Implement password hashing and validation (5 story points)

[ ] Create database and tables for users, slips, reservations, and waitlists (8 story points)

[ ] Implement slip reservation logic, including availability checks and waitlist management (10 story points)

[ ] Implement reservation lookup functionality (5 story points)

[ ] Implement waitlist lookup functionality (3 story points)

***Frontend Development:***

[ ] Design and develop the landing page, about us page, and contact us page (5 story points)

[ ] Design and develop registration and login forms (5 story points)

[ ] Design and develop slip reservation form (8 story points)

[ ] Design and develop a reservation summary page (5 story points)

[ ] Design and develop a reservation lookup page (3 story points)

[ ] Design and develop waitlist lookup page (3 story points)

***Testing:***

[ ] Write unit tests for backend logic (8 story points)

[ ] Perform integration testing (5 story points)

[ ] Perform user acceptance testing (3 story points)

**2 - Design**

**3 – QA Testing**

Sources.

Medium (Accessed 03/18/2025) Test-Driven Development (TDD): A Step-by-Step Guide (Published 05/14/2024) URL: <https://medium.com/getir/test-driven-development-tdd-a-step-by-step-guide-2046a075b9d0>

Codurance (Accessed 03/18/2025) Getting started with TDD (Published 03/20/2024) URL: <https://www.codurance.com/publications/getting-started-with-tdd>