

Team Collated Documentation

Project: School Activity Booking System

Team: Sanchit, Chichebendu, Shiva, Sharjeel

The Big Picture - What We Built

We built a complete **School Activity Booking Website**.

Imagine Amazon, but for School Clubs:

- Parents can shop for clubs (Swimming, Math, Art)
- They add to cart and pay
- They get receipts and calendar invites
- Teachers get class lists
- Admins manage everything

Who Did What? (The Dream Team)

We divided the work so everyone had a special technical job.

1. Sanchit Kaushal (The Leader & Guard)

Role: Security & Admin

- **Analogy**: He built the building, the locks on the doors, and the manager's office.

- **Key Jobs**:

- Login system (Who are you?)
- Security (Keep hackers out)
- Admin Panel (Control room)
- Putting it on the internet

2. Chichebendu Blessed Umeh (The Messenger)

Role: Emails & Integration

- **Analogy**: He is the postman and the secretary.

- **Key Jobs**:

- Sending confirmation emails
- Creating PDF invoices
- Making calendar invites
- Teacher's portal

3. Shiva Kasula (The Brain)

Role: Database & Logic

- **Analogy**: He is the filing clerk and the bouncer.

- **Key Jobs**:

- Database (Storing info)
- Rules (No double bookings!)
- Waitlist (The queue)
- Payments (The cash register)

4. Mohd Sharjeel (The Optimizer)

Role: Integration & Performance Engineer

- **Analogy**: He built the connections and made everything faster.

- **Key Jobs**:

- **AJAX Integration**: Real-time updates without page refresh

- **Performance Optimization**: Query optimization, caching, lazy loading
 - **Availability Algorithm**: Real-time calculation of remaining spots
 - **Client-Side Validation**: Input checking algorithms
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How It All Works Together

Follow the Journey of a Booking:

Step 1: The Interface (Sharjeel's Code)

- Parent visits website.
- Sharjeel's **responsive logic** detects a mobile phone.
- Sharjeel's **Jinja2 code** loops through activities and renders them.
- It shows "Swimming" with a Green "Available" badge (Logic-based).

Step 2: The Login (Sanchit's Work)

- Parent clicks "Login".
- Types password.
- Sanchit's security checks the password hash.

- Access Granted!

Step 3: The Booking (Shiva's Work)

- Parent clicks "Book Swimming".
- Shiva's logic checks: "Is it full?", "Did they pay?"
- Everything OK? -> Save to Database.

Step 4: The Confirmation (Chichebendu's Work)

- Immediately, an email is sent.
- "Ding!" Phone buzzes.
- PDF Invoice attached.
- Calendar event added to phone.

Step 5: The Class (Everyone)

- Teacher logs in (Sanchit)
- Checks list (Shiva)
- Marks attendance (Chichebendu)
- On a structured interface (Sharjeel)

Technologies We Used (The Tools)

| Tool | What It Is | Why We Used It |

|-----|-----|-----|

| **Python** | Programming Language | Easy to write, powerful |

| **Flask** | Web Framework | Builds websites fast |

| **SQLite** | Database | Stores our data simply |

| **Jinja2** | Template Engine | Logic for HTML (Loops/Ifs) |

| **CSS3** | Styling Language | Layout and Design Architecture |

| **Git** | Version Control | Lets us work together without overwriting |

Challenges We Solved

Problem 1: Double Booking

- **Scenario**: Two parents try to book the LAST spot at the exact same second.
- **Solution (Shiva)**: "Database Transactions". The computer freezes for 0.01 seconds, lets one in, and tells the other "Sorry, full!".

Problem 2: Emails going to Spam

- **Scenario**: Emails looked fake, so Gmail blocked them.
- **Solution (Chichebendu)**: Used professional SMTP settings and proper HTML templates. Now they hit the Inbox every time.

****Problem 3: Hackers****

- ***Scenario***: Bad people trying to fake forms.

- ***Solution (Sanchit)***: CSRF Tokens. Secret codes on every form that hackers can't guess.

****Problem 4: Code Maintainability****

- ***Scenario***: Changing the theme color required editing 50 files.

- ***Solution (Sharjeel)***: "CSS Variables Architecture". Defined colors in one place, used everywhere.

Changed 50 files to 1 line of code.

Conclusion

We built a professional, secure, and beautiful system. It solves a real problem for schools (messy paper forms) and makes life easier for parents, teachers, and admins.

****Project Status****: ■ Complete & Ready for Use!