

# Team Collated Documentation

**\*\*Project\*\***: School Activity Booking System

**\*\*Team\*\***: Sanchit, Chichebendu, Shiva, Sharjeel

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## 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

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## 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)
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## Technologies We Used (The Tools)

Tool	What It Is	Why We Used It
<b>Python</b>	Programming Language	Easy to write, powerful
<b>Flask</b>	Web Framework	Builds websites fast
<b>SQLite</b>	Database	Stores our data simply
<b>Jinja2</b>	Template Engine	Logic for HTML (Loops/Ifs)
<b>CSS3</b>	Styling Language	Layout and Design Architecture
<b>Git</b>	Version Control	Lets us work together without overwriting

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## 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.

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## 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!