



# CONVIN

## Convin Assignment

**Please read carefully.**

- You need to submit the assignment within 48 hours of receiving it.
- The assignment needs to be submitted on [techhr@convin.ai](mailto:techhr@convin.ai)
- In the mail kindly mention “Backend Intern Task”
- Also send your resume & portfolio along with the assignment.
- We will revert back with the result within 15-20 days.
- Any sort of further communication can be done over the above mentioned mail.
- Kindly revert back with the doubts and queries(if any) on [techhr@convin.ai](mailto:techhr@convin.ai)

**Assignment:** Daily Expenses Sharing Application

**Objective:**

Design and implement a backend for a daily-expenses sharing application. This application will allow users to add expenses and split them based on three different methods: exact amounts, percentages, and equal splits. The application should manage user details, validate inputs, and generate downloadable balance sheets.

**Requirements:**

**User Management:**

- ✓ Each user should have an email, name, and mobile number.

**Expense Management:**

- ✓ Users can add expenses.

**Expenses can be split using three methods:**

1. **Equal:** Split equally among all participants.
2. **Exact:** Specify the exact amount each participant owes.

3. **Percentage:** Specify the percentage each participant owes. (Ensure percentages add up to 100%).

### **Expense Calculation Examples:**

1. **Equal:**

**Scenario:** You go out with 3 friends. The total bill is 3000. Each friend owes 1000.

2. **Exact:**

**Scenario:** You go shopping with 2 friends and pay 4299. Friend 1 owes 799, Friend 2 owes 2000, and you owe 1500.

3. **Percentage:**

**Scenario:** You go to a party with 2 friends and one of your cousins. You owe 50%, Friend 1 owes 25%, and Friend 2 owes 25%.

### **Balance Sheet:**

- ✓ Show individual expenses.
- ✓ Show overall expenses for all users.
- ✓ Provide a feature to download the balance sheet.

### **Deliverables:**

#### **Backend Service:**

Design the backend service to handle user and expense management.

#### **API Endpoints:**

##### **User Endpoints:**

- ✓ Create user.
- ✓ Retrieve user details.

##### **Expense Endpoints:**

- ✓ Add expense.
- ✓ Retrieve individual user expenses.
- ✓ Retrieve overall expenses.
- ✓ Download balance sheet.

#### **Data Validation:**

- ✓ Validate user inputs.

- ✓ Ensure percentages in the percentage split method add up to 100%.

**Documentation:**

- ✓ Include setup and installation instructions.
- ✓ Write clear and concise code comments.

**Evaluation Criteria:**

1. **Correctness:** Functionality meets the requirements.
2. **Code Quality:** Code is clean, readable, and maintainable.
3. **Documentation:** Clear and comprehensive documentation.
4. **Innovation:** Creative and efficient solutions.

**Bonus Points:**

- ✓ Implement user authentication and authorization.
- ✓ Include error handling and input validation.
- ✓ Optimize performance for large datasets.
- ✓ Add unit and integration tests.

**Submission:**

Submit your project as a GitHub repository link.

Include a README file with instructions on how to set up and run the project.

Good luck! We look forward to seeing your creative and technical skills in action.