

Assignment Overview: Personal Wallet Application

Build a basic personal wallet application using Express and PostgreSQL DB (for backend APIs) and ReactJS (for frontend UI). A user has a personal wallet (like in PhonePe for example) which he can use to store cash, spend cash and get cashbacks.

Data model

personal_wallet table will have a minimum of these many fields:

1. user_id, unique
2. username
3. phone, unique
4. balance, ideally int (her balance in paise)
5. Other fields as developer thinks fit

transactions table will have a record of each transaction on a personal wallet of a user. It'll have a minimum of these many fields:

1. user_id, foreign key to personal_wallet
2. transaction_type, one of add_funds or spend_funds
3. trans_date, datetime field, records time of transaction
4. initial_balance, int, balance before this transaction
5. amount, transaction amount, int
6. final_balance, balance after transaction, int. Must match with balance field of personal_wallet table
7. remarks, string
8. Other fields as developer thinks fit

Backend APIs

Add user: <http://localhost:<port>/user>

Method: POST

Adds a new user to the personal_wallet table.

Get balance: http://localhost:<port>/balance?user_id=Usr1

Method: GET

Fetches the balance of a user from personal_wallet table

List all transactions of a user: http://localhost:<port>/transactions? user_id=Usr1

Method: GET

List all transactions of a user

Add funds: <http://localhost:<port>/addFunds>

Method: PUT

Req body: {"user_id": "Usr1", "amount": 102.54}

Amount is in Rs in request. This updates the balance of user with by adding request amount to existing balance in **personal_wallet** table and records it in **transactions** table.

Spend funds: <http://localhost:<port>/spendFunds>

Method: PUT

Req body: {"user_id": "Usr1", "amount": 102.54}

Amount is in Rs in request. This updates the balance of user with by subtracting request amount to existing balance in **personal_wallet** table and records it in **transactions** table. If existing balance < req amount, then it should throw an error, ie, user cannot spend more than what she has in balance.

Backend API Submission

Create the application, host it on personal Github and share

Create a README to detail how to install and run the application

Frontend UI (for Frontend/Full stack candidates)

Below is a sample set of UIs for each of the backend API. Feel free to modify its look, placement etc. Each of the following screen should call its corresponding API (for full stack candidates). For frontend candidates, please hardcode request and response.

1. List all wallets

Personal Wallet UI				
All Wallets	User Id	Name	Phone	Balance (Rs)
New Wallet	Usr1	Name 1	9988999877	765.43
Check Balance	Usr2	Name 2	7763423688	443.24
Add Funds	Usr3	Name 3	3434545666	20.05
Spend Funds				
All Transactions				

2. Create a new wallet

Personal Wallet UI				
All Wallets				
New Wallet	Name	<input type="text"/>		
Check Balance	Phone	<input type="text"/>		
Add Funds	Amount (RS)	<input type="text"/>		
Spend Funds				SUBMIT
All Transactions				

3. Check individual wallet balance

Personal Wallet UI				
All Wallets				
New Wallet	User	<div><input type="text"/><div><div></div></div></div>		
Check Balance	<div><div>Name 1</div><div>Name 2</div><div>Name 3</div></div>			Get Balance
Add Funds				
Spend Funds				
All Transactions				

4. Add funds

Personal Wallet UI								
All Wallets								
New Wallet	User	<div><input type="text"/><div><div></div></div></div>						
Check Balance	<div><div>Name 1</div><div>Name 2</div><div>Name 3</div></div>			SUBMIT				
Add Funds	Amount (Rs)	<input type="text" value="100"/>						
Spend Funds								
All Transactions								

5. Spend funds

All Wallets

New Wallet

Check Balance

Add Funds

Spend Funds

All Transactions

Personal Wallet UI

User

Name 1

Name 2

Name 3

Amount (Rs)

100

SUBMIT

6. List all transactions

	Personal Wallet UI			
	Name	Date	Amount (Rs)	Balance (Rs)
All Wallets	Name1	12 Jan, 5 pm	+125	225
New Wallet	Name1	12 Jan, 6 pm	-50	175
Check Balance	Name 2	13 Jan, 1 am	-65	334.56
Add Funds	Name 3	16 Jan, 2 pm	+22.33	122.33
Spend Funds				
All Transactions				

Frontend UI Submission

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