

# Building any project



Akash Kadlag Today at 9:18 PM

Hi @kiratsingh,

Super Excited to build End-To-End App with pretty much everything we learnt in last 16 weeks.

I already DM you the Notion Docs screenshots about Features of Projects.  
But Here I wanted to share something important...

There are many videos available about build XYZ.  
Even you also have Code With Me type Videos.  
These videos are good.

The problem starts when we try to build this kind of app by ourself.  
Here are few challenges

1. Where to Start...?
2. Design UI/UX
3. Low Level Design
4. High Level Design
5. ER Diagram
6. Tech Stack
7. How to think about new Features.
8. How much complexity is needed..?

## Points

1. Where to start - Feature planning
2. Design UI/UX
  1. UX - First principles/Copy the biggest website out there
  2. UI - Designer. Today there are tools but havent found any good one
3. High level Design
  1. Auth provider
  2. Database
  3. Backend Stack
  4. Frontend stack
  5. Modules you'll have (common/ui/backend)
  6. Cloud to deploy to
4. LLD
  1. Schema
  2. Route signatures

### 3. Frontend Components - debatable

#### 5. ER Diagrams -

1. We can build these today, but usually not needed unless you're a very visual person

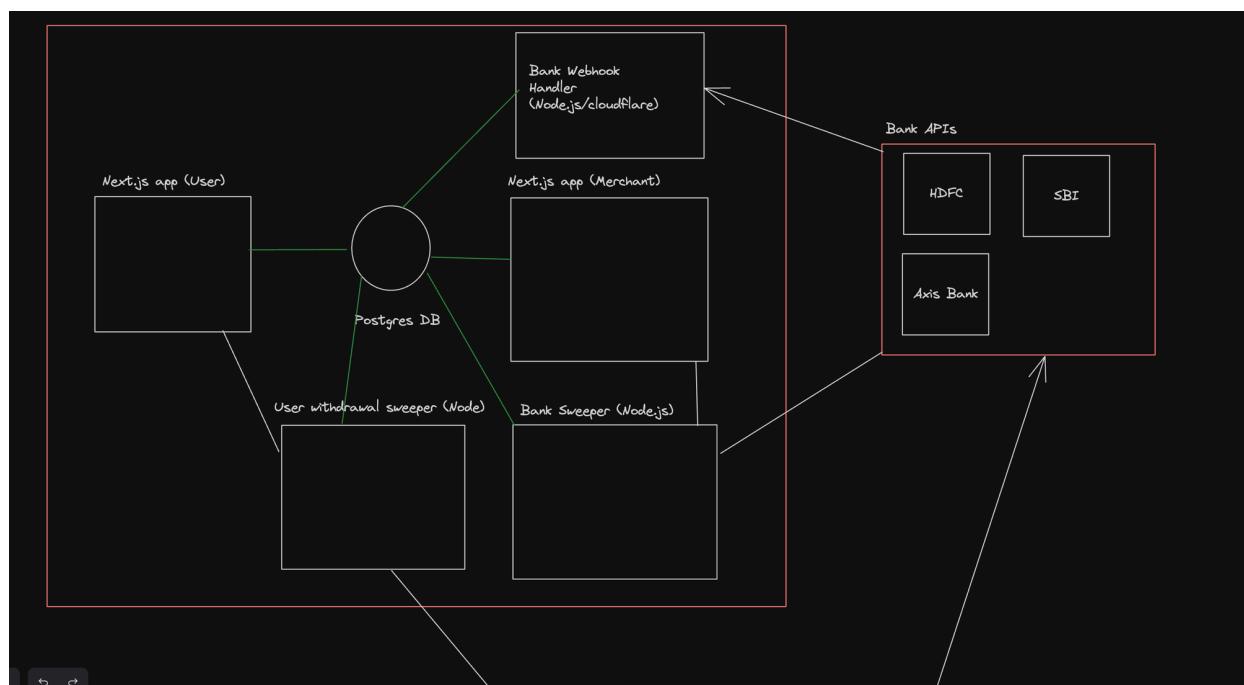
#### 6. How to think about features

1. Usually come from product

2. If you're a founder, then just whatever u think is right

#### 7. How much complexity is needed

1. Depends on the size of the company. For a startup, whatever helps you move fast w/o tech debt. For a company there are a lot of layers of review to go through



If you want a voice speaker that says **Paytm Received 100 rs from someone** we need to add another ws service in here

We'll also be doing DB polling in the middle which should rather be done via a queue

# Feature planning

## User login

1. Auth (In this case, probably email/phone)
2. On ramp from bank, off ramp to bank
3. Support transfers via phone number/name
4. Support scanning a QR code for transferring to merchants

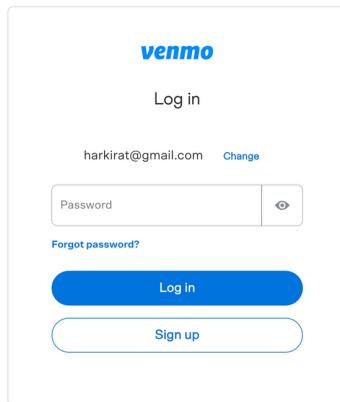
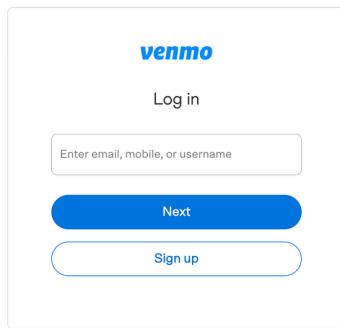
## Merchant login

1. Login with google
2. Generate a QR Code for acceptance
3. Merchants get an alert/notification on payment
4. Merchant gets money offramped to bank every 2 days

# UI/UX (End User)

## Login

---



## Landing page

# Fast, safe social payments

Pay, get paid, grow a business, and more. Join the tens of millions of people on Venmo.

[Get Venmo](#)

## User Home page

The Kraken Home page features a sidebar with links: Home, Explore, Rewards, Transfer, and Transactions. The main area displays a "Good afternoon, Harkirat" greeting and a portfolio value of \$0.00. It includes a timeline from 20 FEB to 23 MAR with a 1M view selected. Below the timeline are "Buy", "Sell", "Convert", "Deposit", and "Withdraw" buttons. To the right, there's a "Set up recurring buys" section with a "Get started" button and a "New" badge. A decorative graphic of a circuit board with glowing nodes is also present.

## User Transfer page

**Transfer**

Deposit Withdraw Transfer

**Payment options**

- UPI Options Pay Directly From Your Bank Account
- Credit/Debit/ATM Card Visa,MasterCard,American Express And More
- Book Now Pay Later Trimbay, Laxmi, Sugal, ZestMoney, ICICI, HDFC
- Net Banking All Major Banks Available
- Gift Cards & e-wallets MMT Gift cards, Mobilkvik & More
- EMI No Cost EMI available
- GooglePay Pay with Google Pay

**Card Number** Enter Your Card Number Here

**Name on Card** Enter Your Name On Card

**Expiry Month & Year** Month Year Card CVV

**₹ 2,058 Due Now** PAY NOW

By continuing to pay, I understand and agree with the [privacy policy](#), the [user agreement](#) and [terms of service](#) of makeMyTrip.

**INR Balance**

Total balance	0 BTC
Order balance	0 BTC
Staking balance	0 BTC
Available balance	0 BTC

**Funding limits**

Daily Daily deposits \$0.00 of Unlimited USD

Daily deposit limit Unlimited USD

**Recent transactions**

[View all transactions](#)

**Transactions**

History Scheduled

**Transactions**

Assets Types Start date End date Clear Export

**Withdrew USDC** Feb 19, 2024, 03:18 -5,059.9477 USDC -\$5,060.36

**Converted to USDC** Feb 19, 2024, 03:17 +5,059.9477 USDC -704.0000 DYM

**Account**

Settings Security Verification Documents

**Personal info**

Public ID	AA18 N84G WIAB KZYA	Edit
Use this ID when you need to share with 3rd parties (including Kraken Support) so your account is always secure.		
Legal name	Harkirat Singh	Edit
Email	harkirat96@gmail.com	Edit
Country	India	Edit

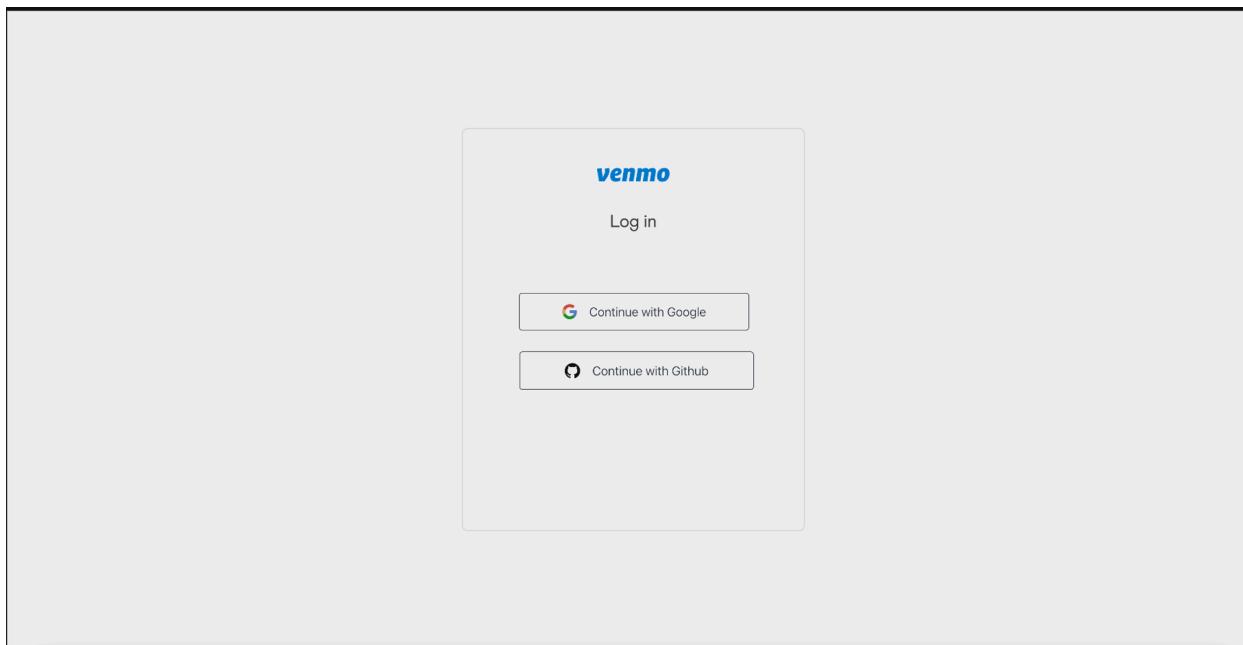
**Preferences**

Language	U.S. English	Edit
Currency	USD	Edit
Timezone	[+00:00 UTC] UTC, Universe	Edit
Auto log-out	Default (8 hours)	Edit

**Buy crypto** ⋮ ⚙️ 🌐 ⚡

- Settings
- Security
- Payment methods
- Documents
- Proof of reserves
- Sign out

# UI/UX (Merchant)



**kraken**

Good afternoon, Harkirat

Portfolio value  
**\$0.00**

20 FEB 28 FEB 7 MAR 15 MAR 23 MAR

1W 1M 3M 6M 1Y ALL

+ Buy - Sell Convert ↴ Deposit ↵ Withdraw

Earn up to 10%+ APR

Set up recurring buys

Schedule regular crypto purchases to balance market fluctuations.

Get started

This screenshot shows the Kraken home page. It displays a portfolio value of \$0.00. The timeline shows data from February 20 to March 23. There are buttons for buying, selling, converting, depositing, and withdrawing assets. A sidebar on the left shows navigation links like Home, Transactions, and Rewards. A callout box on the right suggests setting up recurring buys.

**kraken**

Transactions

History Scheduled

Transactions

Assets Types Start date End date Clear

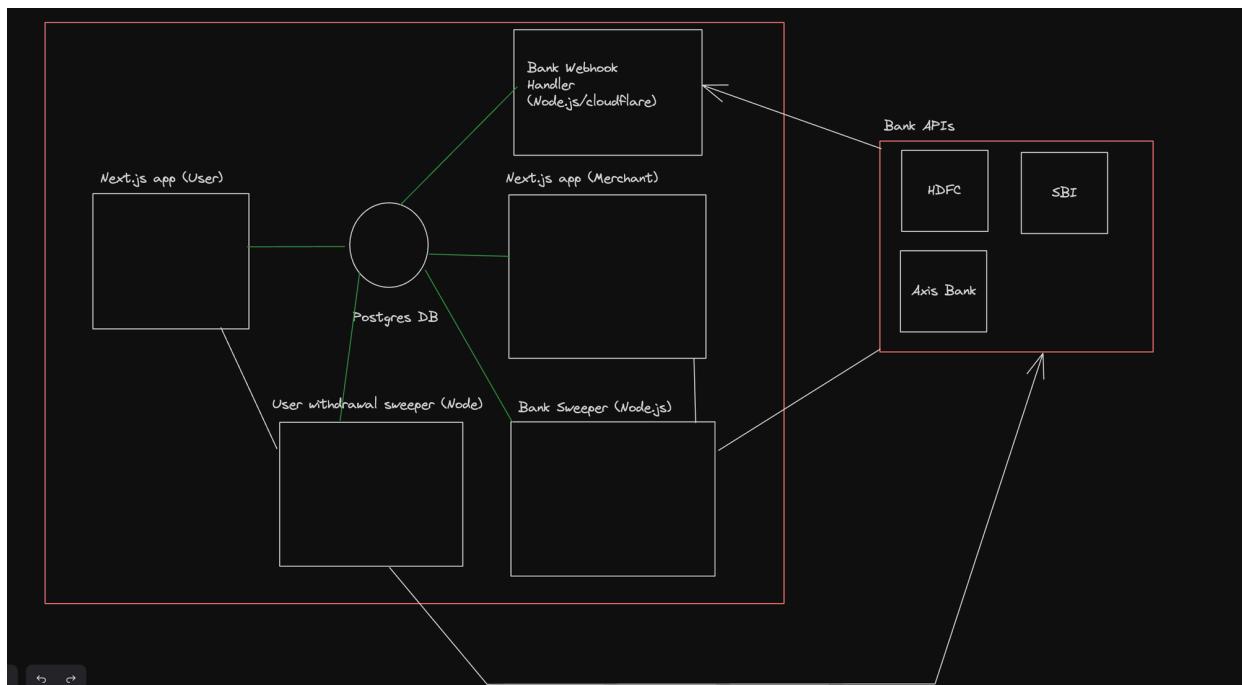
Export

Withdrew USDC Feb 19, 2024, 03:18 -5,059.9477 USDC -\$5,060.36

Converted to USDC Feb 19, 2024, 03:17 +5,059.9477 USDC +704,0000 DYM

This screenshot shows the Kraken transactions page. It lists two recent transactions: a withdrawal of USDC and a conversion to USDC. The sidebar on the left includes links for Home, Explore, Rewards, Transfer, and Transactions.

# Architecture



## Hot paths

1. Send money to someone
2. Withdraw balance of merchant
3. Withdraw balance of user back to bank
4. Webhooks from banks to transfer in money

This is ~1 month job for a 2 engineer team.

We can cut scope in either

1. UI
2. Number of features we support (remove merchant altogether)
3. Number of services we need (merge bank server, do withdrawals directly and not in a queue assuming banks are always up)

# Stack

1. Frontend and Backend - Next.js (or Backend)
2. Express - Auxiliary backends
3. Turborepo
4. Postgres Database
5. Prisma ORM
6. Tailwind

# Bootstrap the app

- Init turborepo

```
npx create-turbo@latest
```



- Rename the two Next apps to

1. user-app
2. merchant-app

- Add tailwind to it.

```
cd apps/user-app
npm install -D tailwindcss postcss autoprefixer
npx tailwindcss init -p

cd ../merchant-app
npm install -D tailwindcss postcss autoprefixer
npx tailwindcss init -p
```



You can also use <https://github.com/vercel/turbo/tree/main/examples/with-tailwind>

Update `tailwind.config.js`

```
/** @type {import('tailwindcss').Config} */
module.exports = {
  content: [
    "./app/**/*.{js,ts,jsx,tsx,mdx}",
    "./pages/**/*.{js,ts,jsx,tsx,mdx}",
    "./components/**/*.{js,ts,jsx,tsx,mdx}",
    "../../packages/ui/**/*.{js,ts,jsx,tsx,mdx}"
  ],
  theme: {
    extend: {},
  },
  plugins: [],
}
```



Update `global.css`

```
@tailwind base;
@tailwind components;
```



```
@tailwind utilities;
```

---

 Ensure tailwind is working as expected

# Adding prisma

Ref - <https://turbo.build/repo/docs/handbook/tools/prisma>

1. Create a new `db` folder

2. Initialise package.json

---

```
npm init -y  
npx tsc --init
```



1. Update package.json

---

```
{  
  "name": "@repo/db",  
  "version": "0.0.0",  
  "dependencies": {  
    "@prisma/client": "^5.11.0"  
  },  
  "devDependencies": {  
    "prisma": "5.11.0"  
  },  
  "exports": {  
    "./client": "./index.ts"  
  }  
}
```



1. Update tsconfig.json

---

```
{  
  "extends": "@repo/typescript-config/react-library.json",  
  "compilerOptions": {  
    "outDir": "dist"  
  },  

```



1. Init prisma

---

```
npx prisma init
```



1. Start DB locally/on neon.db/on aiven
  2. Update .env with the new database URL
  3. Add a basic schema
- 

```
model User {  
    id    Int      @id @default(autoincrement())  
    email String  @unique  
    name  String?  
}
```



1. Migrate DB
- 

```
npx prisma migrate
```



1. Update index.ts
- 

```
export * from '@prisma/client';
```



1. Try adding api/user/route.ts
- 

```
import { NextResponse } from "next/server"  
import { PrismaClient } from "@repo/db/client";  
  
const client = new PrismaClient();  
  
export const GET = async () => {  
    await client.user.create({  
        data: {  
            email: "asd",  
            name: "adsads"  
        }  
    })  
    return NextResponse.json({  
        message: "hi there"  
    })  
}
```



# Add a recoil/store module

- Create `store` package

```
cd packages
mkdir store
npm init -y
npx tsc --init
```



- Install dependencies

```
npm i recoil
```



- Update tsconfig.json

```
{
  "extends": "@repo/typescript-config/react-library.json",
  "compilerOptions": {
    "outDir": "dist"
  },
  "include": ["src"],
  "exclude": ["node_modules", "dist"]
}
```



- Update package.json

```
{
  "name": "@repo/store",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC",
  "dependencies": {
    "recoil": "^0.7.7"
  }
}
```



- Create a simple `atom` called `balance` in `src/atoms/balance.ts`

```
import { atom } from "recoil";

export const balanceAtom = atom<number>({
  key: "balance",
  default: 0,
})
```



- Create a simple `hook` called `src/hooks/useBalance.ts`

```
import { useRecoilValue } from "recoil"
import { balanceAtom } from "../atoms/balance"

export const useBalance = () => {
  const value = useRecoilValue(balanceAtom);
  return value;
}
```



- Add export to package.json

```
"exports": {
  "./useBalance": "./src/hooks/useBalance"
}
```



# Import recoil in the next.js apps

- Install recoil in them

```
npm i recoil
```



- Add a `providers.tsx` file

```
"use client"  
import { RecoilRoot } from "recoil";  
  
export const Providers = ({children}: {children: React.ReactNode}) => {  
  return <RecoilRoot>  
    {children}  
  </RecoilRoot>  
}
```



- Update `layout.tsx`

```
return (  
  <html lang="en">  
    <Providers>  
      <body className={inter.className}>{children}</body>  
    </Providers>  
  </html>  
)
```



- Create a simple client component and try using the `useBalance` hook in there

```
"use client";  
  
import { useBalance } from "@repo/store/useBalance";  
  
export default function() {  
  const balance = useBalance();  
  return <div>  
    hi there {balance}  
  </div>  
}
```



If you see this, we'll try to debug it end of class. Should still work in dev mode

```
TS useBalance.ts U    {} package.json .../store U    {} package.json .../ui    TS page.tsx .../merchant-app/... 1, U
ops > merchant-app > app > ts page.t Cannot find module '@repo/store/balance' or its corresponding type declarations. ts(2307)
1   "use client";
2
3   import { useBalance } from "@repo/store/balance"; View Problem (F8) No quick fixes available
4
5   export default function() {
6     const balance = useBalance();
7     return <div>
8       | hi there {balance}
9     </div>
```

# Add next-auth

## Database

Update the database schema

```
generator client {
  provider = "prisma-client-js"
}

datasource db {
  provider = "postgresql"
  url      = env("DATABASE_URL")
}

model User {
  id        Int      @id @default(autoincrement())
  email     String?  @unique
  name      String?
  number    String   @unique
  password  String
}

model Merchant {
  id        Int      @id @default(autoincrement())
  email     String   @unique
  name      String?
  auth_type AuthType
}

enum AuthType {
  Google
  Github
}
```



## User-app

- Go to [apps/user-app](#)
- Initialize next-auth

```
npm install next-auth
```



- Initialize a simple next auth config in [lib/auth.ts](#)



```
import db from "@repo/db/client";
import CredentialsProvider from "next-auth/providers/credentials"
import bcrypt from "bcrypt";

export const authOptions = {
  providers: [
    CredentialsProvider({
      name: 'Credentials',
      credentials: {
        phone: { label: "Phone number", type: "text", placeholder: "12312312",
          password: { label: "Password", type: "password" }
        },
        // TODO: User credentials type from next-auth
        async authorize(credentials: any) {
          // Do zod validation, OTP validation here
          const hashedPassword = await bcrypt.hash(credentials.password, 10);
          const existingUser = await db.user.findFirst({
            where: {
              number: credentials.phone
            }
          });

          if (existingUser) {
            const passwordValidation = await bcrypt.compare(credentials.password, existingUser.password);
            if (passwordValidation) {
              return {
                id: existingUser.id.toString(),
                name: existingUser.name,
                email: existingUser.number
              }
            }
            return null;
          }

          try {
            const user = await db.user.create({
              data: {
                number: credentials.phone,
                password: hashedPassword
              }
            });

            return {
              id: user.id.toString(),
              name: user.name,
              email: user.number
            }
          } catch(e) {
            console.error(e);
          }
        }
      }
    })
  ]
}
```

```
        return null
    },
})
],
secret: process.env.JWT_SECRET || "secret",
callbacks: {
    // TODO: can u fix the type here? Using any is bad
    async session({ token, session }: any) {
        session.user.id = token.sub

        return session
    }
}
}
```

- Create a `/api/auth/[...nextauth]/route.ts`

```
import NextAuth from "next-auth"

const handler = NextAuth(authOptions)

export { handler as GET, handler as POST }
```

- Update .env

```
JWT_SECRET=test
NEXTAUTH_URL=http://localhost:3001
```

- Ensure u see a signin page at <http://localhost:3000/api/auth/signin>

## Merchant-app

Create `lib/auth.ts`

```
import GoogleProvider from "next-auth/providers/google";

export const authOptions = {
    providers: [
        GoogleProvider({
            clientId: process.env.GOOGLE_CLIENT_ID || "",
            clientSecret: process.env.GOOGLE_CLIENT_SECRET || ""
        })
    ]
}
```

```
 ],  
 }
```

---

- Create a `/api/auth/[...nextauth]/route.ts`

```
import NextAuth from "next-auth"  
  
const handler = NextAuth(authOptions)  
  
export { handler as GET, handler as POST }
```

---



- Put your google client and secret in `.env` of the merchant app.  
▷ <https://next-auth.js.org/providers/google>

```
GOOGLE_CLIENT_ID=  
GOOGLE_CLIENT_SECRET=  
NEXTAUTH_URL=http://localhost:3000  
NEXTAUTH_SECRET=kiratsecr3t
```

---



- Ensure u see a signin page at <http://localhost:3001/api/auth/signin>
- Try signing in and make sure it reaches the DB

# Add auth

## Client side

- Wrap the apps around `SessionProvider` context from the next-auth package
- Go to `merchant-app/providers.tsx`

```
"use client"

import { RecoilRoot } from "recoil";
import { SessionProvider } from "next-auth/react";

export const Providers = ({children}: {children: React.ReactNode}) => {
    return <RecoilRoot>
        <SessionProvider>
            {children}
        </SessionProvider>
    </RecoilRoot>
}
```

- Do the same for `user-app/providers.tsx`

## Server side

Create `apps/user-app/app/api/user.route.ts`

```
import { getServerSession } from "next-auth"
import { NextResponse } from "next/server";
import { authOptions } from "../../lib/auth";

export const GET = async () => {
    const session = await getServerSession(authOptions);
    if (session.user) {
        return NextResponse.json({
            user: session.user
        })
    }
    return NextResponse.json({
        message: "You are not logged in"
    }, {
        status: 403
    })
}
```

Ensure login works as expected

# Add an Appbar component

- Update the `Button` component in UI

```
"use client";

import { ReactNode } from "react";

interface ButtonProps {
    children: ReactNode;
    onClick: () => void;
}

export const Button = ({ onClick, children }: ButtonProps) => {
    return (
        <button onClick={onClick} type="button" className="text-white bg-gray-800 ho
            {children}
        </button>

    );
};
```

- Create a `ui/Appbar` component that is highly generic (doesnt know anything about the user/how to logout).

```
import { Button } from "./button";

interface AppbarProps {
    user?: {
        name?: string | null;
    },
    // TODO: can u figure out what the type should be here?
    onSignin: any,
    onSignout: any
}

export const Appbar = ({
    user,
    onSignin,
    onSignout
}: AppbarProps) => {
    return <div className="flex justify-between border-b px-4">
        <div className="text-lg flex flex-col justify-center">
            PayTM
    </div>
</div>
```

```
</div>
<div className="flex flex-col justify-center pt-2">
    <Button onClick={user ? onSignout : onSignin}>{user ? "Logout" : "Lo
</div>
</div>
}
```

---

# Checkpoint

We are here - <https://github.com/100xdevs-cohort-2/paytm-project-starter-monorepo>

# On Ramping

## Creating a dummy bank server

- Allows PayTM to generate a `token` for a payment for a user for some amount

```
POST /api/transaction
{
  "user_identifier": "1",
  "amount": "59900", // Rs 599
  "webhookUrl": "http://localhost:3003/hdfcWebhook"
}
```



- PayTM should redirect the user to

```
https://bank-api-frontend.com/pay?token={token\_from\_step\_1}
```



- If user made a successful payment, `Bank` should hit the `webhookUrl` for the company

## Creating a bank\_webhook\_handler Node.js project

- Init node.js project + esbuild

```
cd apps
mkdir bank_webhook_handler
cd bank_webhook_handler
npm init -y
npx tsc --init
npm i esbuild express @types/express
```



- Update tsconfig

```
{
  "extends": "@repo/typescript-config/base.json",
  "compilerOptions": {
    "outDir": "dist"
  },
  "include": ["src"],
  "exclude": ["node_modules", "dist"]
}
```



- Create `src/index.ts`

```
import express from "express";  
  
const app = express();  
  
app.post("/hdfcWebhook", (req, res) => {  
    //TODO: Add zod validation here?  
    const paymentInformation = {  
        token: req.body.token,  
        userId: req.body.user_identifier,  
        amount: req.body.amount  
    };  
    // Update balance in db, add txn  
})
```



- Update DB Schema

```
generator client {  
    provider = "prisma-client-js"  
}  
  
datasource db {  
    provider = "postgresql"  
    url      = env("DATABASE_URL")  
}  
  
model User {  
    id          Int      @id @default(autoincrement())  
    email       String   @unique  
    name        String?  
    number      String   @unique  
    password    String  
    OnRampTransaction OnRampTransaction[]  
    Balance     Balance[]  
}  
  
model Merchant {  
    id          Int      @id @default(autoincrement())  
    email       String   @unique  
    name        String?  
    auth_type   AuthType  
}  
  
model OnRampTransaction {  
    id          Int      @id @default(autoincrement())  
    status      OnRampStatus  
    token      String   @unique  
    provider    String
```



```

amount Int
startTime DateTime
userId Int
user User @relation(fields: [userId], references: [id])
}

model Balance {
  id Int @id @default(autoincrement())
  userId Int @unique
  amount Int
  locked Int
  user User @relation(fields: [userId], references: [id])
}

enum AuthType {
  Google
  Github
}

enum OnRampStatus {
  Success
  Failure
  Processing
}

```

- Migrate the DB

 Go to the right folder (packages/db)  
 npx prisma migrate dev --name add\_balance

- Add `repo/db` as a dependency to package.json

 "@repo/db": "\*"

- Add transaction to update the balance and transactions DB  
 Ref - <https://www.prisma.io/docs/orm/prisma-client/queries/transactions>



```

import express from "express";
import db from "@repo/db/client";
const app = express();

app.use(express.json())

app.post("/hdfcWebhook", async (req, res) => {
  //TODO: Add zod validation here?
  //TODO: HDFC bank should ideally send us a secret so we know this is sent by
  const paymentInformation: {
    ...
  }
  ...
})

```

```
        token: string;
        userId: string;
        amount: string
    } = {
        token: req.body.token,
        userId: req.body.user_identifier,
        amount: req.body.amount
    };

try {
    await db.$transaction([
        db.balance.updateMany({
            where: {
                userId: Number(paymentInformation.userId)
            },
            data: {
                amount: {
                    // You can also get this from your DB
                    increment: Number(paymentInformation.amount)
                }
            }
        }),
        db.onRampTransaction.updateMany({
            where: {
                token: paymentInformation.token
            },
            data: {
                status: "Success",
            }
        })
    ]);
}

res.json({
    message: "Captured"
})
} catch(e) {
    console.error(e);
    res.status(411).json({
        message: "Error while processing webhook"
    })
}

})

app.listen(3003);
```



# Create generic appbar

- Create a new `AppbarClient` component in `apps/user-app/AppbarClient.tsx`

```
"use client"

import { signIn, signOut, useSession } from "next-auth/react";
import { Appbar } from "@repo/ui/appbar";
import { useRouter } from "next/navigation";

export function AppbarClient() {
  const session = useSession();
  const router = useRouter();

  return (
    <div>
      <Appbar onSignin={signIn} onSignout={async () => {
        await signOut()
        router.push("/api/auth/signin")
      }} user={session.data?.user} />
    </div>
  );
}
```



- Add `AppbarClient` to `layout.tsx`

```
import "./globals.css";
import type { Metadata } from "next";
import { Inter } from "next/font/google";
import { Providers } from "../provider";
import { AppbarClient } from "../components/AppbarClient";

const inter = Inter({ subsets: ["latin"] });

export const metadata: Metadata = {
  title: "Wallet",
  description: "Simple wallet app",
};

export default function RootLayout({
  children,
}: {
  children: React.ReactNode;
}): JSX.Element {
  return (
    <html lang="en">
      <Providers>
```



```
<AppbarClient />
<body className={inter.className}>{children}</body>
</Providers>
</html>
);
}
```

---

# Create sidebar

- Create `user-app/(dashboard)` folder
- Add 3 pages inside it
  - `dashboard/page.tsx`
  - `transactions/page.tsx`
  - `transfer/page.tsx`



```
export default function() {
    return <div>
        Dashboard Page (or transfer/txn page)
    </div>
}
```

- Create `user-app/(dashboard)/layout.tsx`



Icons come from <https://heroicons.com/>  
SidebarItem will be created in the next step



```
import { SidebarItem } from "....components/SidebarItem";

export default function Layout({
    children,
}: {
    children: React.ReactNode;
}): JSX.Element {
    return (
        <div className="flex">
            <div className="w-72 border-r border-slate-300 min-h-screen mr-4 pt-28">
                <div>
                    <SidebarItem href={"/dashboard"} icon={<HomeIcon />} title="Home">
                    <SidebarItem href={"/transfer"} icon={<TransferIcon />} title="T">
                    <SidebarItem href={"/transactions"} icon={<TransactionsIcon />}>
                </div>
            </div>
            {children}
        </div>
    );
}

// Icons Fetched from https://heroicons.com/
function HomeIcon() {
```

```

        <path stroke-linecap="round" stroke-linejoin="round" d="m2.25 12 8.954-8.955
    </svg>
}
function TransferIcon() {
    return <svg xmlns="http://www.w3.org/2000/svg" fill="none" viewBox="0 0 24 24
        <path stroke-linecap="round" stroke-linejoin="round" d="M7.5 21 3 16.5m0 0L7
    </svg>
}

function TransactionsIcon() {
    return <svg xmlns="http://www.w3.org/2000/svg" fill="none" viewBox="0 0 24 24
        <path stroke-linecap="round" stroke-linejoin="round" d="M12 6v6h4.5m4.5 0a9
    </svg>

}

```

- Create `SidebarItem` component

□

```

"use client"

import { usePathname, useRouter } from "next/navigation";
import React from "react";

export const SidebarItem = ({ href, title, icon }): { href: string; title: string } => {
    const router = useRouter();
    const pathname = usePathname()
    const selected = pathname === href

    return <div className={`flex ${selected ? "text-[#6a51a6]" : "text-slate-500"
        router.push(href);
    }>
        <div className="pr-2">
            {icon}
        </div>
        <div className={`font-bold ${selected ? "text-[#6a51a6]" : "text-slate-500"
            title
        </div>
    </div>
}

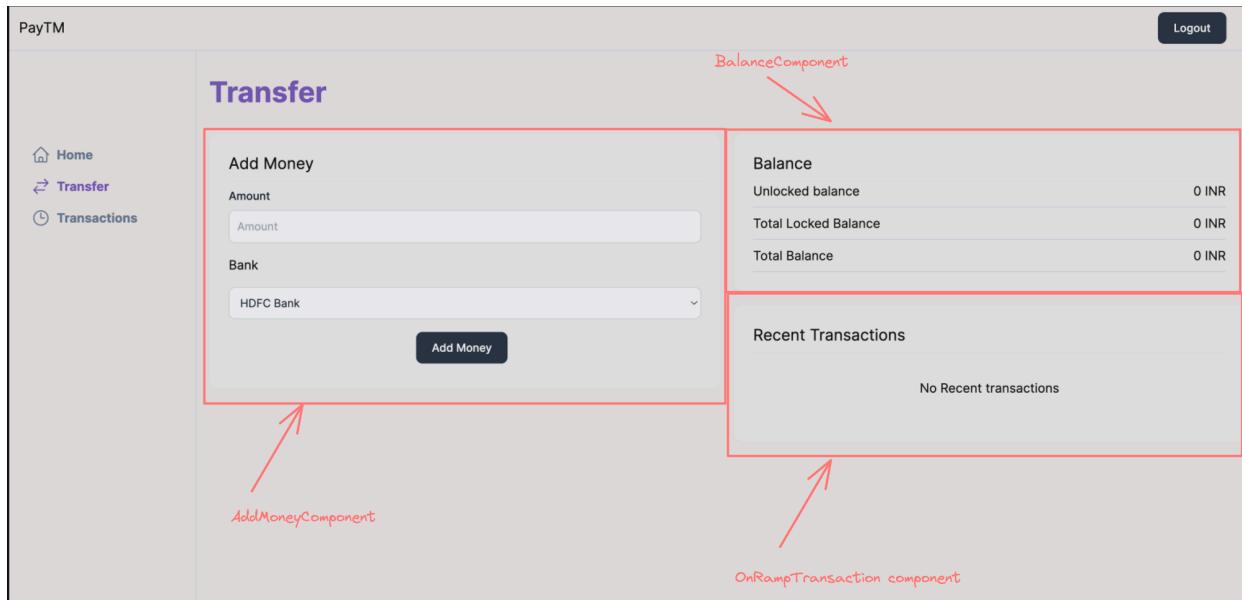
```

You should have 3 pages that look like this

## Dashboard

 Home  
 Transfer  
 Transactions

# Create transfer page



- Add a better `card` component to `packages/ui`

```
import React from "react";  
  
export function Card({  
  title,  
  children,  
}: {  
  title: string;  
  children?: React.ReactNode;  
}): JSX.Element {  
  return (  
    <div  
      className="border p-4"  
    >  
      <h1 className="text-xl border-b pb-2">  
        {title}  
      </h1>  
      <p>{children}</p>  
    </div>  
  );  
}
```

- Add a `Center` component that centralizes (both vertically and horizontally) the children given to it (in `packages/ui` )



Make sure to export it in `package.json`

```
import React from "react"

export const Center = ({ children }: { children: React.ReactNode }) => {
  return <div className="flex justify-center flex-col h-full">
    <div className="flex justify-center">
      {children}
    </div>
  </div>
}
```



- Add a `Select` component to `packages/ui` (Make sure to export it)

```
"use client"

export const Select = ({ options, onSelect }: {
  onSelect: (value: string) => void;
  options: {
    key: string;
    value: string;
  }[];
}) => {
  return <select onChange={(e) => {
    onSelect(e.target.value)
}} className="bg-gray-50 border border-gray-300 text-gray-900 text-sm rounded [&] {options.map(option => <option value={option.key}>{option.value}</option>)}</select>
}
```



- Add `TextInput` component to `packages/ui`

```
"use client"

export const TextInput = ({
  placeholder,
  onChange,
  label
}): {
  placeholder: string;
  onChange: (value: string) => void;
  label: string;
}) => {
  return <div className="pt-2">
    <label className="block mb-2 text-sm font-medium text-gray-900">{label}</label>
    <input onChange={(e) => onChange(e.target.value)} type="text" id="first_</input>
  </div>
}
```



```
</div>
}
```

- 
- Create `user-app/components/AddMoneyCard.tsx`



```
"use client"

import { Button } from "@repo/ui/button";
import { Card } from "@repo/ui/card";
import { Center } from "@repo/ui/center";
import { Select } from "@repo/ui/select";
import { useState } from "react";
import { TextInput } from "@repo/ui/textinput";

const SUPPORTED_BANKS = [{  
    name: "HDFC Bank",  
    redirectUrl: "https://netbanking.hdfcbank.com"  
}, {  
    name: "Axis Bank",  
    redirectUrl: "https://www.axisbank.com/"  
}];

export const AddMoney = () => {  
    const [redirectUrl, setRedirectUrl] = useState(SUPPORTED_BANKS[0]?.redirectU  
    return <Card title="Add Money">  
        <div className="w-full">  
            <TextInput label="Amount" placeholder="Amount" onChange={() => {  
                // Handle amount change  
            }} />  
            <div className="py-4 text-left">  
                Bank  
            </div>  
            <Select onSelect={(value) => {  
                setRedirectUrl(SUPPORTED_BANKS.find(x => x.name === value)?.redirec  
            }} options={SUPPORTED_BANKS.map(x => ({  
                key: x.name,  
                value: x.name  
            }))} />  
            <div className="flex justify-center pt-4">  
                <Button onClick={() => {  
                    window.location.href = redirectUrl || "";  
                }}>  
                    Add Money  
                </Button>  
            </div>  
        </div>  
    </Card>  
}
```

- 
- Create `user-app/components/BalanceCard.tsx`



We're diving my 100 because we store in `paise` denomination in the db

```
import { Card } from "@repo/ui/card";

export const BalanceCard = ({amount, locked}: {
    amount: number;
    locked: number;
}) => {
    return <Card title={"Balance"}>
        <div className="flex justify-between border-b border-slate-300 pb-2">
            <div>
                Unlocked balance
            </div>
            <div>
                {amount / 100} INR
            </div>
        </div>
        <div className="flex justify-between border-b border-slate-300 py-2">
            <div>
                Total Locked Balance
            </div>
            <div>
                {locked / 100} INR
            </div>
        </div>
        <div className="flex justify-between border-b border-slate-300 py-2">
            <div>
                Total Balance
            </div>
            <div>
                {((locked + amount) / 100)} INR
            </div>
        </div>
    </Card>
}
```

- Create `user-app/components/OnRampTransaction.tsx`

```
import { Card } from "@repo/ui/card"

export const OnRampTransactions = ({
    transactions
}: {
    transactions: {
        time: Date,
        amount: number,
        // TODO: Can the type of `status` be more specific?
        status: string,
    }
}) => {
    return <Card title="On Ramp Transactions">
        <div>
            <table border="1">
                <thead>
                    <tr>
                        <th>Time</th>
                        <th>Amount</th>
                        <th>Status</th>
                    </tr>
                </thead>
                <tbody>
                    {transactions.map(transaction => (
                        <tr>
                            <td>{transaction.time}</td>
                            <td>{transaction.amount}</td>
                            <td>{transaction.status}</td>
                        </tr>
                    ))}
                </tbody>
            </table>
        </div>
    </Card>
}
```

```

        provider: string
    }[]
}) => {
    if (!transactions.length) {
        return <Card title="Recent Transactions">
            <div className="text-center pb-8 pt-8">
                No Recent transactions
            </div>
        </Card>
    }
    return <Card title="Recent Transactions">
        <div className="pt-2">
            {transactions.map(t => <div className="flex justify-between">
                <div>
                    <div className="text-sm">
                        Received INR
                    </div>
                    <div className="text-slate-600 text-xs">
                        {t.time.toDateString()}
                    </div>
                </div>
                <div className="flex flex-col justify-center">
                    + Rs {t.amount / 100}
                </div>
            </div>
        </div>
    </Card>
}

```

- Create `user-app/app/(dashboard)/transfer/page.tsx`

```

import prisma from "@repo/db/client";
import { AddMoney } from "../../components/AddMoneyCard";
import { BalanceCard } from "../../components/BalanceCard";
import { OnRampTransactions } from "../../components/OnRampTransactions";
import { getServerSession } from "next-auth";
import { authOptions } from "../../lib/auth";

async function getBalance() {
    const session = await getServerSession(authOptions);
    const balance = await prisma.balance.findFirst({
        where: {
            userId: Number(session?.user?.id)
        }
    });
    return {
        amount: balance?.amount || 0,
        locked: balance?.locked || 0
    }
}

```

```
}

async function getOnRampTransactions() {
    const session = await getServerSession(authOptions);
    const txns = await prisma.onRampTransaction.findMany({
        where: {
            userId: Number(session?.user?.id)
        }
    });
    return txns.map(t => ({
        time: t.startTime,
        amount: t.amount,
        status: t.status,
        provider: t.provider
    }))
}

export default async function() {
    const balance = await getBalance();
    const transactions = await getOnRampTransactions();

    return <div className="w-screen">
        <div className="text-4xl text-[#6a51a6] pt-8 mb-8 font-bold">
            Transfer
        </div>
        <div className="grid grid-cols-1 gap-4 md:grid-cols-2 p-4">
            <div>
                <AddMoney />
            </div>
            <div>
                <BalanceCard amount={balance.amount} locked={balance.locked} />
                <div className="pt-4">
                    <OnRampTransactions transactions={transactions} />
                </div>
            </div>
        </div>
    </div>
}
```

# Add some seed data

- Go to `packages/db`
- Add `prisma/seed.ts`

```
import { PrismaClient } from '@prisma/client'
const prisma = new PrismaClient()

async function main() {
  const alice = await prisma.user.upsert({
    where: { number: '9999999999' },
    update: {},
    create: {
      number: '9999999999',
      password: 'alice',
      name: 'alice',
      OnRampTransaction: {
        create: {
          startTime: new Date(),
          status: "Success",
          amount: 2000,
          token: "122",
          provider: "HDFC Bank",
        },
      },
    },
  })
  const bob = await prisma.user.upsert({
    where: { number: '9999999998' },
    update: {},
    create: {
      number: '9999999998',
      password: 'bob',
      name: 'bob',
      OnRampTransaction: {
        create: {
          startTime: new Date(),
          status: "Failure",
          amount: 200,
          token: "123",
          provider: "HDFC Bank",
        },
      },
    },
  })
  console.log({ alice, bob })
}
```



```
main()
  .then(async () => {
    await prisma.$disconnect()
  })
  .catch(async (e) => {
    console.error(e)
    await prisma.$disconnect()
    process.exit(1)
  })
}
```

- Update package.json

```
"prisma": {
  "seed": "ts-node prisma/seed.ts"
}
```

- Run command to seed db

```
npx prisma db seed
```

- Explore db

```
npx prisma studio
```

# Make landing page redirect

The user should go to either the `signin page` or the `dashboard page` based on if they are logged in

Update root `page.tsx`

```
import { getServerSession } from "next-auth";
import { redirect } from 'next/navigation'
import { authOptions } from "./lib/auth";

export default async function Page() {
  const session = await getServerSession(authOptions);
  if (session?.user) {
    redirect('/dashboard')
  } else {
    redirect('/api/auth/signin')
  }
}
```



Final codebase - <https://github.com/100xdevs-cohort-2/week-17-final-code>

