**🔥 FINAL SEQUENCE OF AI MODELS 🔥**

**🔹 Step 1: User Onboarding**

**Inputs:**  
✅ Salary, Fixed & Variable Expenses, Past Savings  
✅ Financial Goals (e.g., Buy House ₹65L in 5 Years)  
✅ Risk Preference (Ultra Safe, Low, Medium, High)

**📌 Model 1: Savings Prediction & Risk Categorization**

**➡️ What it does:**

* Predicts **how much the user can save per month** based on expense patterns.
* Categorizes savings into **risk-based levels**.

**🛠️ Inputs:**

* Past 6 months of salary & expenses
* Spending patterns & seasonality
* Fixed vs. variable expenses

**📊 Output:**

| **Risk Level** | **Projected Monthly Savings** |
| --- | --- |
| **High** | ₹25K - ₹30K |
| **Medium (Recommended)** | ₹18.5K |
| **Low** | ₹12K - ₹15K |

**📌 Model 2: Expense Optimization & Dynamic Budgeting**

**➡️ What it does:**

* Suggests **where the user can cut unnecessary expenses**.
* Adjusts spending dynamically **every month**.

**🛠️ Inputs:**

* Savings forecast from Model 1
* Expense categories & spending patterns
* Real-time transactions

**📊 Output Example:**

* **"Reduce shopping from ₹8K → ₹6K to save ₹2K more."**
* **"Adjust travel budget from ₹6K → ₹4K for faster goal achievement."**
* **"Optimized budget plan for next month."**

**📌 Model 3: Investment Strategy & Risk-Based Growth (💰 Investment Comes Before Goal-Based Planning)**

**➡️ What it does:**

* Ensures that **saved money is invested smartly** instead of sitting idle.
* Suggests **best investment plans based on risk appetite**.
* Predicts **how much money will grow in X years**.

**🛠️ Inputs:**

* Savings amount from Model 2
* Risk preference (Ultra Safe, Low, Medium, High)
* Market trends & expected returns

**📊 Output:**

| **Risk Level** | **Investment Type** | **Expected Annual Return** | **Savings After 5 Years** |
| --- | --- | --- | --- |
| **Ultra Safe** | Fixed Deposits (FD) | 5%-6% | ₹14L |
| **Low Risk** | Index Funds | 10% | ₹17L |
| **Medium Risk (Recommended)** | Mutual Funds + Bonds | 12% | ₹20L |
| **High Risk** | Stocks + Crypto | 18%-20% | ₹25L+ |

**📌 Model 4: Goal-Based Planning (EMI Calculation & Tenure Optimization)**

**➡️ What it does:**

* Uses **final savings + investment returns** to **plan EMI or lump sum**.
* Ensures **emergency funds & future savings** are maintained.
* Suggests **3-4 EMI plans based on risk & tenure options**.

**🛠️ Inputs:**

* Final savings from Model 3 (including investment growth)
* User’s goal (House ₹65L in 5 years)
* EMI or Lump Sum preference
* Loan interest rates & tenure options

**📊 Output:**  
🔹 **If lump sum:**

* How much the user needs to **save per month**.
* Investment options for **faster goal achievement**.

🔹 **If EMI-based:**

* **Down payment options** (Minimum 10%-20%)
* **Closest EMI to savings with lowest tenure**
* **3-4 EMI options based on risk profile**

| **Investment Risk** | **Final Down Payment (After 5 Years)** | **Loan Required** | **EMI for Different Tenures** |
| --- | --- | --- | --- |
| **Ultra Safe** | ₹18L | ₹47L | **₹39K (15 yrs), ₹34K (20 yrs)** |
| **Low Risk** | ₹22L | ₹43L | **₹45K (10 yrs), ₹38K (15 yrs)** |
| **Medium Risk (Recommended)** | ₹26L | ₹39L | **₹52K (7 yrs), ₹45K (10 yrs)** |
| **High Risk** | ₹30L | ₹35L | **₹58K (5 yrs), ₹52K (7 yrs)** |

**📌 FINAL SEQUENCE OF MODELS IN THE APP**

**🔹 Step 1: User Onboarding**

* Inputs **salary, expenses, goals, risk preference**.
* Past transactions analyzed via **Account Aggregator (AA).**

**🔹 Step 2: Savings & Budget Optimization (Model 1 & 2)**

* **Model 1**: Predicts **monthly savings** based on spending history.
* **Model 2**: Suggests **where user can save more** by adjusting expenses.

**🔹 Step 3: Investment Strategy (Model 3)**

* **Model 3**: Allocates **savings into investments** to grow money efficiently.

**🔹 Step 4: Goal-Based Planning (Model 4)**

* **Model 4**: Uses **invested savings** to calculate **down payment & EMI plans**.
* Offers **3-4 EMI options based on risk & tenure**.

**🔹 Step 5: Real-Time Monitoring & Adjustments**

* AI tracks expenses **dynamically every month**.
* Adjusts **investments, savings, and spending**.
* Ensures financial **stability while achieving the goal**.

**🔥 Why This Flow is the Best**

✔ **Investment Happens First:** Ensures **saved money is growing efficiently** before planning the goal.  
✔ **Optimized EMI Plans:** Users **get multiple risk-based EMI options**.  
✔ **Real-Time Adjustments:** AI adapts **monthly spending & savings dynamically**.  
✔ **Smart Financial Planning:** Maintains **emergency funds & future savings**.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Step** | **AI Model Used** | **Purpose** | **Key Inputs** | **Key Outputs** |
| **Model 1: Savings Prediction & Risk Categorization** | **Time Series Forecasting (LSTM/ARIMA/XGBoost)** | Predicts **monthly savings** based on expenses | Salary, Past 6M Expenses, Spending Trends | Savings estimates (High: 25K-30K, Medium: 18.5K, Low: 12K-15K) |
| **Model 2: Expense Optimization & Dynamic Budgeting** | **Reinforcement Learning (RL) + Clustering (K-Means, DBSCAN)** | Optimizes expense categories to **increase savings dynamically** | Past Expenses, Monthly Income, Spending Trends | Smart budget plan (e.g., "Reduce shopping ₹8K → ₹6K, save ₹2K more") |
| **Model 3: Investment Strategy & Risk-Based Growth** | **Portfolio Optimization (Markowitz Model) + Monte Carlo Simulation** | Invests savings in **different risk levels** to maximize growth | Savings from Model 2, User Risk Profile, Market Trends | Expected returns for **Ultra Safe, Low, Medium, High risk** |
| **Model 4: Goal-Based Planning (EMI & Tenure Calculation)** | **Optimization (Linear Programming) + EMI Calculation Model** | Uses investment growth to **plan down payment & EMI options** | Savings from Model 3, Loan Interest Rates, EMI Tenures | Best EMI plans for **different risk levels & tenure options** |