CoachX

Financial Analysis Project

Report and Insights

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Batch: CX-143

Introduction

This project focused on applying core financial concepts such as **Annuity, EMI, Investment Decisions, and IRR** using Microsoft Excel.

The aim was to **analyze financial problems practically**, use Excel's financial functions to solve them, and present the findings with the help of charts and insights.

By simulating real-world cases such as loan repayment schedules and investment cash flows, we learned how financial analysis guides decision-making for both individuals and businesses.

Methodology

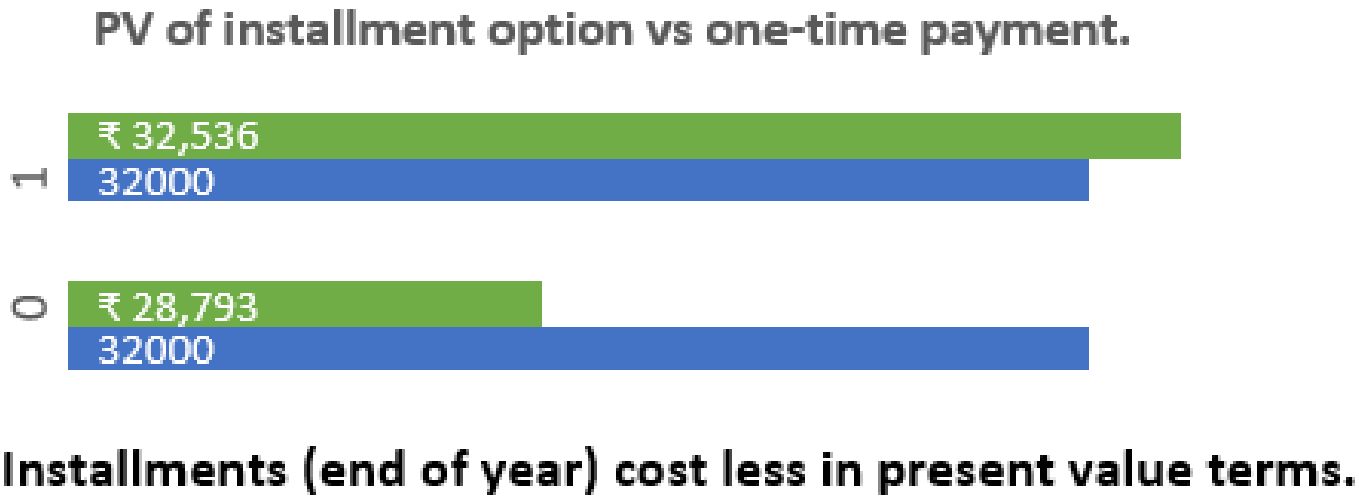
- **Excel Functions Used**
  - PV – to calculate the present value of future payments (Annuity).
  - PMT – to compute fixed Equated Monthly Installments (EMI).
  - NPV – to evaluate and compare investment projects.
  - IRR – to measure the return percentage of uneven cash flows.
- **Visualization**
  Designed three key charts in Excel for better interpretation:
  - Bar chart comparing PV of **Installments vs One-time Payment**.
  - Stacked column chart showing **EMI split (Interest vs Principal)**.
  - Bar chart comparing **NPV of different investment options**.

Approches

- For **Annuity**, we applied the **PV** function to compare the present value of installment payments against a one-time payment.
- For **EMI**, we used the **PMT** function to calculate fixed installments, then built an amortization table with **IPMT** and **PPMT** to separate interest and principal.
- For **Investment Decisions**, we calculated NPV using **NPV** and **XNPV** (when cash flow timings were irregular) and compared projects.
- For **Profitability**, we used **IRR** and **XIRR** to measure returns, and applied **MIRR** to get a more realistic return rate when reinvestment assumptions were needed.

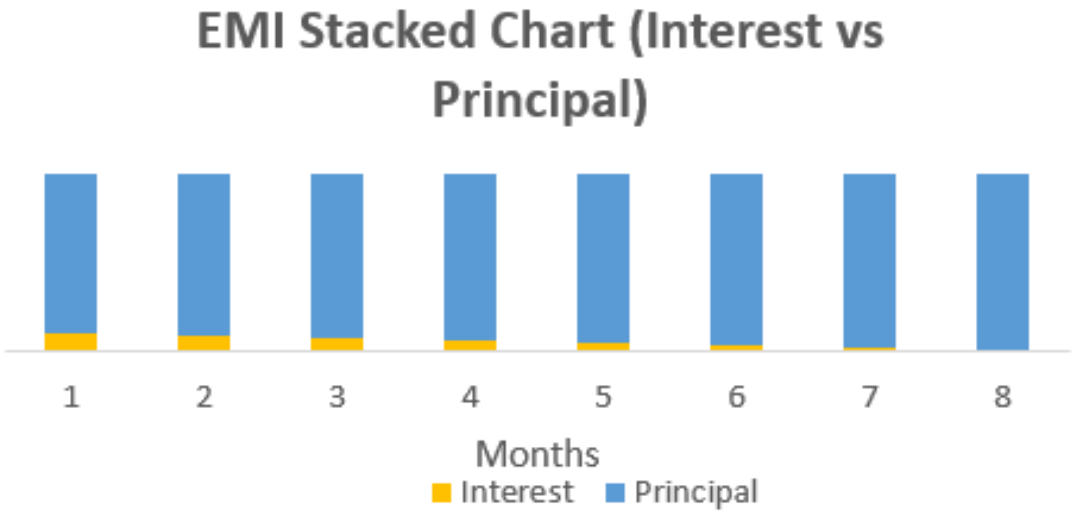
Insights

- **Annuity / PV:** Installments often look cheaper in present value terms than lump-sum payments, depending on interest rate and timing.



Insights

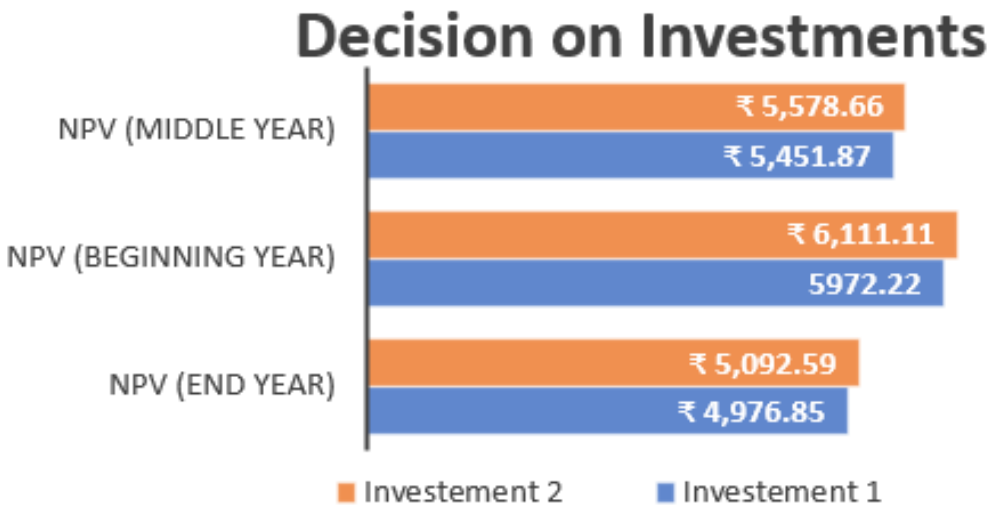
- **EMI:** While the EMI remains constant, the **interest portion is much higher in the initial months**, gradually reducing as more principal is repaid.



EMI is fixed, but early payments are mostly interest, later payments are mostly principal.

Insights

- **Investment Decision:** NPV is a more reliable metric than simply comparing raw cash inflows. The project with the **higher NPV should be chosen**.



Investment with higher NPV is better, even if raw returns look smaller.

Insights

- **IRR:** Helps assess profitability of irregular cash flows, confirming whether returns exceed required cost of capital.

Key Findings

- Timing of payments significantly affects the true cost of a purchase (PV concept).
- Loan structures favor lenders in early years due to high interest portions.
- Investment alternatives must be evaluated on NPV and IRR, not just on total inflows.
- MIRR is more accurate in complex investment scenarios.

Recommendations

- Choose installment options if their present value is lower than a lump sum.
- Make prepayments or shorter-term loans to save on interest burden.
- Always use NPV and IRR before committing to an investment project.
- Use MIRR for better profitability assessment.

Recommendations

From this project, we learned not only the **mathematical functions** of PV, PMT, NPV, and IRR in Excel, but also their **real-world applications.**

From a learning perspective, this project demonstrated how data analysis can simplify financial decision-making.

Overall, the analysis guides better decision-making for loans and investments.