🏠 Loan Amortization Excel Tracker – Project Documentation

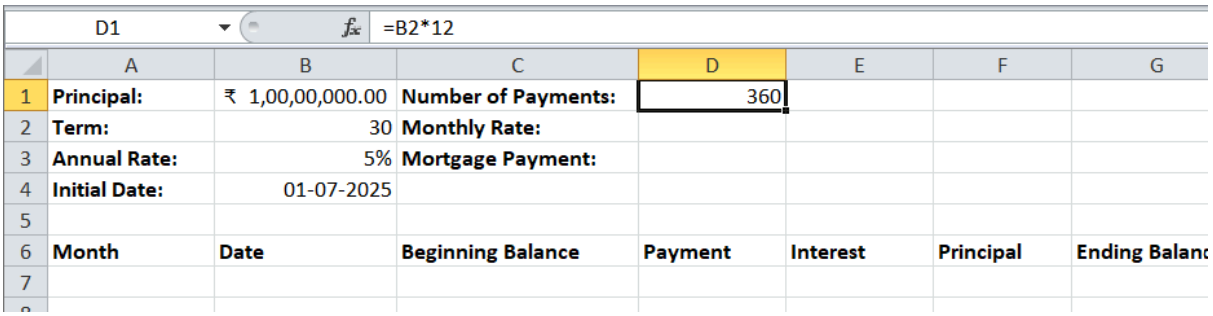
📌 Objective

To create a month-by-month **loan amortization schedule** using Microsoft Excel that shows how each payment is split into interest and principal, while tracking the remaining balance over time.

📥 Inputs

🔢 Number of Payments

- Total number of payments for the loan (e.g., 12 months for 1 year loan)



	A	B	C	D	E	F	G
1	**Principal:**	₹ 1,00,00,000.00	**Number of Payments:**	360			
2	**Term:**	30	**Monthly Rate:**				
3	**Annual Rate:**	5%	**Mortgage Payment:**				
4	**Initial Date:**	01-07-2025					
5							
6	**Month**	**Date**	**Beginning Balance**	**Payment**	**Interest**	**Principal**	**Ending Balanc**
7							

📉 Monthly Interest Rate

Derived from annual rate:

```
= Annual Interest Rate / 12
```

D2 =B3/12

	A	B	C	D	E	F	G
1	**Principal:**	₹ 1,00,00,000.00	**Number of Payments:**	360			
2	**Term:**	30	**Monthly Rate:**	0.004166667			
3	**Annual Rate:**	5%	**Mortgage Payment:**		(Ctrl)		
4	**Initial Date:**	01-07-2025					
5							
6	**Month**	**Date**	**Beginning Balance**	**Payment**	**Interest**	**Principal**	**Ending Balanc**
7							

💸 Monthly Mortgage Payment

Formula to calculate equal monthly payment using PMT:

```
=PMT(MonthlyRate, NumberOfPayments, -LoanAmount)
```

D3 =PMT(D2,D1,-B1,0)

	A	B	C	D	E	F	G
1	**Principal:**	₹ 1,00,00,000.00	**Number of Payments:**	360			
2	**Term:**	30	**Monthly Rate:**	0.004166667			
3	**Annual Rate:**	5%	**Mortgage Payment:**	₹ 53,682.16			
4	**Initial Date:**	01-07-2025					
5							
6	**Month**	**Date**	**Beginning Balance**	**Payment**	**Interest**	**Principal**	**Ending Balan**
7							

- *Negative sign is used to display result as a positive value.*

📊 Amortization Table Breakdown

📈 Interest Calculation

Monthly Interest:

```
= Beginning Balance * Monthly Rate
```

E7 =C7*D2

	A	B	C	D	E	F	G
1	**Principal:**	₹ 1,00,00,000.00	**Number of Payments:**	360			
2	**Term:**	30	**Monthly Rate:**	0.004166667			
3	**Annual Rate:**	5%	**Mortgage Payment:**	₹ 53,682.16			
4	**Initial Date:**	01-07-2025					
5							
6	**Months**	**Date**	**Beginning Balance**	**Payment**	**Interest**	**Principal**	**Ending Balanc**
7	1	01-07-2025	₹ 1,00,00,000.00	₹ 53,682.16	₹ 41,666.67		
8	2	01-08-2025					
9	3	01-09-2025					

💰 Principal Calculation

Principal Portion of Monthly Payment:

```
= Monthly Payment - Interest
```

F7 =D7-E7

	A	B	C	D	E	F	G
1	**Principal:**	₹ 1,00,00,000.00	**Number of Payments:**	360			
2	**Term:**	30	**Monthly Rate:**	0.004166667			
3	**Annual Rate:**	5%	**Mortgage Payment:**	₹ 53,682.16			
4	**Initial Date:**	01-07-2025					
5							
6	**Months**	**Date**	**Beginning Balance**	**Payment**	**Interest**	**Principal**	**Ending Balance**
7	1	01-07-2025	₹ 1,00,00,000.00	₹ 53,682.16	₹ 41,666.67	₹ 12,015.50	
8	2	01-08-2025					
9	3	01-09-2025					
10	4	01-10-2025					
11	5	01-11-2025					

🏁 Ending Balance

Balance after monthly principal is deducted:

```
= Beginning Balance - Principal
```

G7 =C7-F7

	B	C	D	E	F	G	H
1	₹ 1,00,00,000.00	**Number of Payments:**	360				
2	30	**Monthly Rate:**	0.004166667				
3	5%	**Mortgage Payment:**	₹ 53,682.16				
4	01-07-2025						
5							
6	**Date**	**Beginning Balance**	**Payment**	**Interest**	**Principal**	**Ending Balance**	
7	01-07-2025	₹ 1,00,00,000.00	₹ 53,682.16	₹ 41,666.67	₹ 12,015.50	₹ 99,87,984.50	
8	01-08-2025						
9	01-09-2025						
10	01-10-2025						

🔁 New Beginning Balance

Carried forward from the **previous month's Ending Balance**:

```
= Previous Row's Ending Balance
```

C8 =G7

	B	C	D	E	F	G
1	₹ 1,00,00,000.00	**Number of Payments:**	360			
2	30	**Monthly Rate:**	0.004166667			
3	5%	**Mortgage Payment:**	₹ 53,682.16			
4	01-07-2025					
5						
6	**Date**	**Beginning Balance**	**Payment**	**Interest**	**Principal**	**Ending Balance**
7	01-07-2025	₹ 1,00,00,000.00	₹ 53,682.16	₹ 41,666.67	₹ 12,015.50	₹ 99,87,984.50
8	01-08-2025	₹ 99,87,984.50				
9	01-09-2025					
10	01-10-2025					
11	01-11-2025					

🔄 Consistent Monthly Payment Logic

The monthly payment remains constant through the loan period, but its **composition changes**:

- Interest portion decreases
- Principal portion increases

D8 =D3

	B	C	D	E	F	G	H
1	₹ 1,00,00,000.00	**Number of Payments:**	360				
2	30	**Monthly Rate:**	0.004166667				
3	5%	**Mortgage Payment:**	₹ 53,682.16				
4	01-07-2025						
5							
6	**Date**	**Beginning Balance**	**Payment**	**Interest**	**Principal**	**Ending Balance**	
7	01-07-2025	₹ 1,00,00,000.00	₹ 53,682.16	₹ 41,666.67	₹ 12,015.50	₹ 99,87,984.50	
8	01-08-2025	₹ 99,87,984.50	₹ 53,682.16				
9	01-09-2025						
10	01-10-2025						
11	01-11-2025						
12	01-12-2025						
13	01-01-2026						

💲 Interest Calculation

Interest Per Month = Beginning Balance of the Month X Monthly Rate

E8 =C8*D2

	B	C	D	E	F	G
1	₹ 1,00,00,000.00	**Number of Payments:**	360			
2	30	**Monthly Rate:**	0.004166667			
3	5%	**Mortgage Payment:**	₹ 53,682.16			
4	01-07-2025					
5						
6	**Date**	**Beginning Balance**	**Payment**	**Interest**	**Principal**	**Ending Balance**
7	01-07-2025	₹ 1,00,00,000.00	₹ 53,682.16	₹ 41,666.67	₹ 12,015.50	₹ 99,87,984.50
8	01-08-2025	₹ 99,87,984.50	₹ 53,682.16	₹ 41,616.60		
9	01-09-2025					
10	01-10-2025					

📎 Formula Summary Table

Field	Formula
Monthly Rate	`=AnnualRate / 12`
Monthly Payment	`=PMT(MonthlyRate, NumberOfPayments, -LoanAmount)`
Interest (per month)	`=BeginningBalance * MonthlyRate`
Principal (per month)	`=MonthlyPayment - Interest`
Ending Balance	`=BeginningBalance - Principal`
New Beginning Balance	`=PreviousMonthEndingBalance`

✅ Final Notes

- You can use Excel's **Fill Down** and **Auto Calculate** features to generate the full table.
- Use **Conditional Formatting** for visualizing balance reduction or interest trends.
- Graphs (optional) can show balance decline or total interest vs. principal over time.