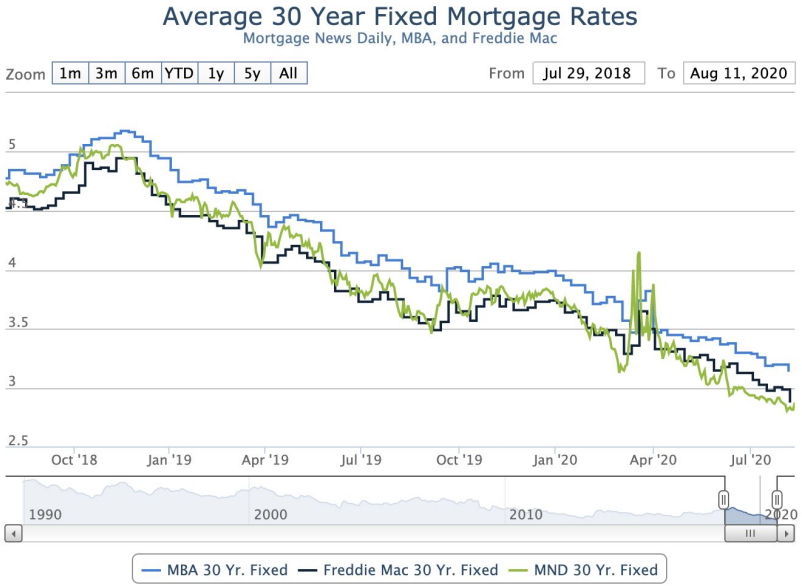
Analyze Mortgage Data Using Loan Calculator R Shiny App

Motivation and Goal

- Current mortgage rate keeps dropping
- Refinance becomes a good option
- Current online free loan calculator can't provide all the information people need.

- Develop a Loan calculator R Shiny App
- Analyze mortgage data with better visualization and report table.
- Provide consultation for families and friends.



Source: Mortgage News Daily

Loan Calculator Shiny App

- **How much I need to pay monthly (interest and principle) given loan amount, interest rate and loan term?**
- **How much interest I can save from my original loan with current principal balance, new interest rate and new term?**
- **How much interest and time I can save from my original loan with a Lump-Sum payment**?
- **How much interest and time I can save from my original loan with additional monthly payment**?

➔ **Original Loan**: monthly payment table; total interest

➔ **Refinance**: saved interest; new monthly payment table

➔ **Lump-Sum Payment**: saved interest and new maturity date

➔ **Additional Monthly Payment**: saved interest and new maturity date.

Loan Calculator Shiny App

- **Original Loan**: monthly payment table; total interest

$$\text{Monthly payment} = \frac{\text{PV} * \text{R}}{1 - \frac{1}{(1+\text{R})^{\text{n}}}}$$

Interest = PV * R

Principal = payment - interest

PV: principal value
R: monthly rate
n: loan term (in month)

Original Principle Value:

200000

Original Interest Rate (%):

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5

Original Term (years)

15

Calculate

Tools

Refinance | Lump Sum | Add Monthly Payment

Current Principle Value:

100000

New Interest Rate (%):

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5

New Term (years)

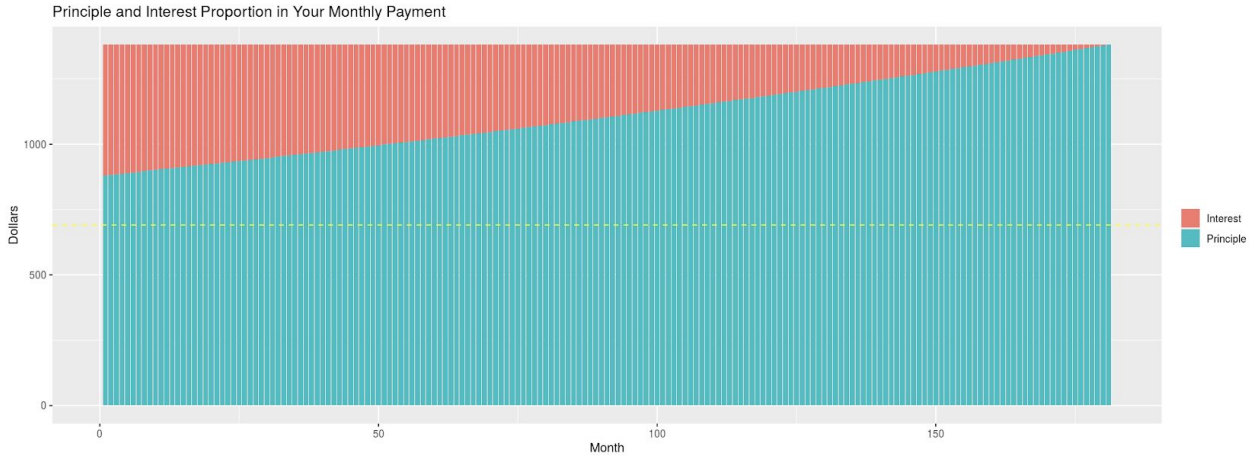
10

Apply

Please email (lymnadia2016@gmail.com) us you have any question!

Original Data | Refinance | Lump Sum | Add Monthly Payment

Your monthly payment is $1381.16; Your total interest is $48609.55.



Show 10 entries

Search:

	Month	Monthly.Interest	Cum.Interest	Monthly.Principle	Cum.Principle	Remain.Principle
1	1	500	500	881.16	881.16	199118.84
2	2	497.8	997.8	883.36	1764.52	198235.48
3	3	495.59	1493.39	885.57	2650.09	197349.91
4	4	493.37	1986.76	887.79	3537.88	196462.12
5	5	491.16	2477.92	890	4427.88	195572.12

Loan Calculator Shiny App

- **Refinance**: saved interest; new monthly payment table

Input:

- current principal balance
- new interest rate
- new loan term

Output:

- saved interest amount
- new monthly payment table
- rate vs. saved interest plot

Original Principle Value:

200000

Original Interest Rate (%):

0 3 5

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5

Original Term (years)

15

Calculate

Tools

Refinance | Lump Sum | Add Monthly Payment

Current Principle Value:

100000

New Interest Rate (%):

0 2 5

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5

New Term (years)

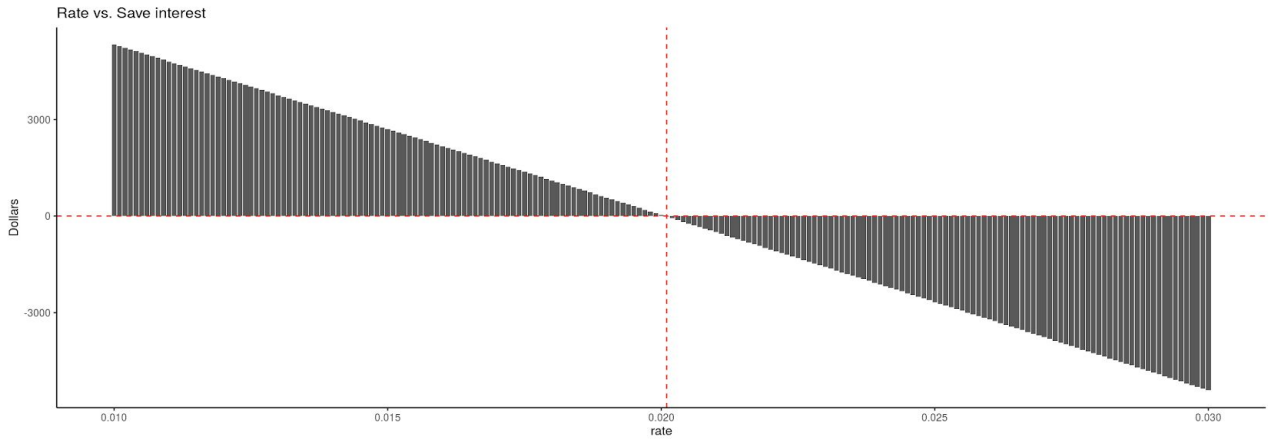
10

Apply

Please email (lymnadia2016@gmail.com) us you have any question!

Original Data | Refinance | Lump Sum | Add Monthly Payment

Your saved interest is $37.74. Your new monthly payment is $920.13.



Show 10 entries Search:

	Month	Monthly.Interest	Cum.Interest	Monthly.Principle	Cum.Principle	Remain.Principle
1	1	166.67	166.67	753.46	753.46	99246.54
2	2	165.41	332.08	754.72	1508.18	98491.82
3	3	164.15	496.23	755.98	2264.16	97735.84

Loan Calculator Shiny App

- **Lump-Sum Payment**: saved interest and new maturity date
- **Additional Monthly Payment**: saved interest and new maturity date

Input:

- **current principal balance**
- **lump-sum amount ,or**
- **additional monthly amount**

Output:

- **saved interest amount**
- **new maturity date**
- **saved interest vs. amount plot**
- **new maturity date vs. amount plot**

Original Principle Value:

200000

Original Interest Rate (%):

0 3 5

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5

Original Term (years)

15

Calculate

Tools

Refinance | Lump Sum | Add Monthly Payment

Current Principle Value:

100000

Lump Sum Payment:

10000

Min:

10000

Max:

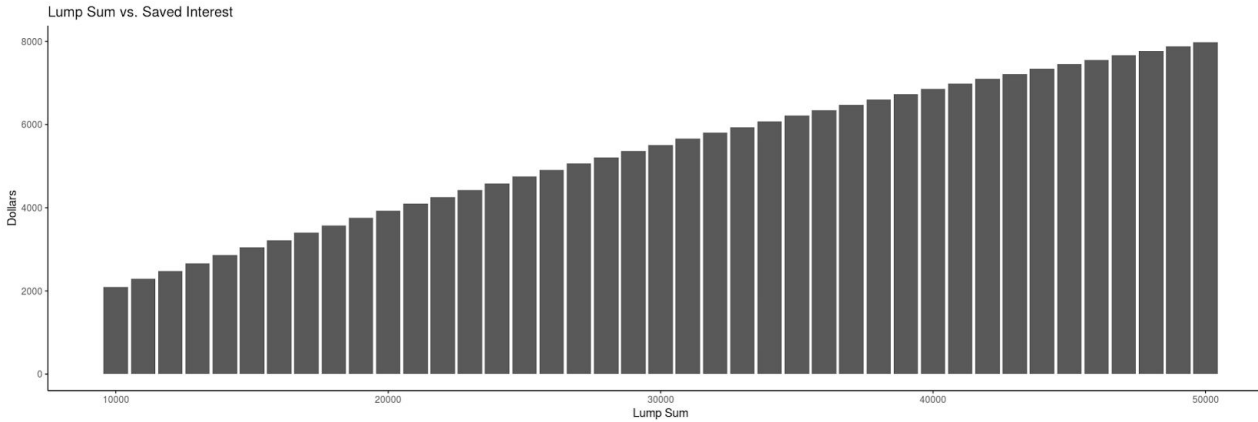
50000

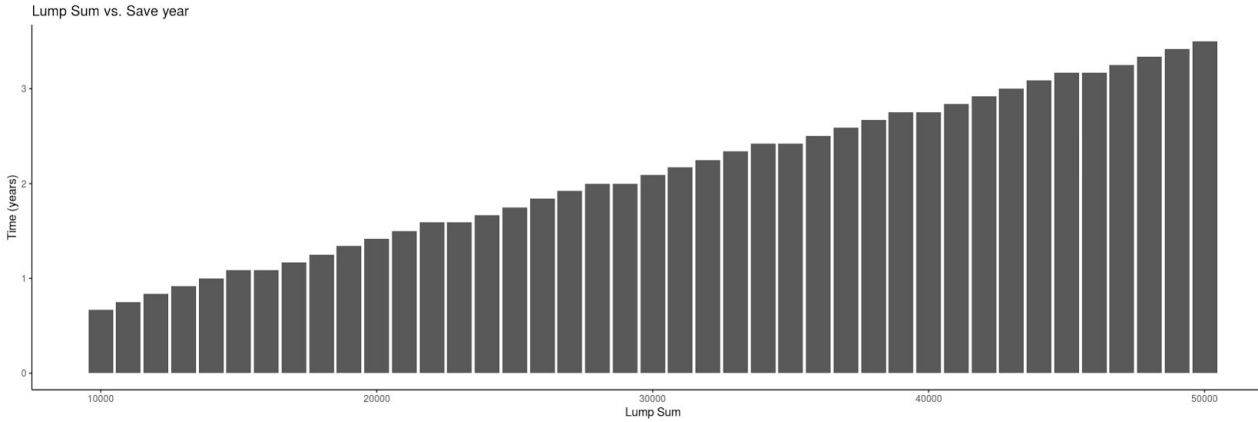
Apply

Please email (lymnadia2016@gmail.com) us you have any question!

Original Data | Refinance | Lump Sum | Add Monthly Payment

Your saved interest is $2092; Your saved time is 0.67years.





Availability

https://davidnadia.shinyapps.io/mortgage_calculator/

Thank you!