**Individual Project: ROI Calculator**

Valencia Diane Walker

Institution Name

Software Engineering

Instructor Brian and Kevin

Monday 23, 2023

How To Calculate the Roi of Your Investment Property

The definition of return on investment “ROI” has been utilized as a foremost marker as it relates to the profitability of stakeholders within the area of real estate, which has been the quantity within profit earned by investment in contrast to the percentage as it relates to investment cost.

Learning to calculate a rental assisted me in conceptualizing better a clearer picture. I knew previously that to calculate a return on your investments, there are requirements such as the cost of the property as well as maintenance expenses and mortgage details of your rental income, which includes both monthly alongside annual leasing expenditures.

In phase one, there have been three general processes in calculating ROI: the formula and the cost method, including the out-of-pocket way. The procedure is paramount in estimating the ROI by subtracting the Gain of the invested “GOI” and dividing next by the total cost, ROI=GOI-COI/Total Cost x 100. Next, the cost of method has been one other process in calculating the ROI of the real estate, which has entailed dividing within the equity position of the property from all asset-interlinked expenditures, encompassing the cost of property, maintenance, also repairs.

Additionally, The Out-OF-Pocket Method has suggested the overall usage of financed transactions within the formula, for instance, in lifting a mortgage with a twenty-percent down payment as a substitute for cash payment, in which you will only have to pay the out-of-pocket costs for both the down payment alongside repairs. In learning, there is, in fact, a common rule which states that the less cash you will invest in real estate, the more you can borrow leads to a much greater ROI. In contrast, most investors have chosen the RROI method, which yields a significantly higher ROI outcome.

Standard definitions I learned when calculating the ROI Net Operating Income “NOI,” which is the profitability concerning your very own investment, which the NOI has represented. In comparison, the NOI has been approximated by subtracting the gross income from the operating expenditure of the rental property.

The cap rate has been related to the capitalization rate, the rate of your return, which permits a person to most easily approximate rental investment opportunities. At the same time, the cap rate can become approximated from the division of your noi from the property rate. The cash-on-cash return is related to the return you receive from your rental investment. The recovery has been calculated from the division coming from after-tax annual cash flow from the quantity you have paid to purchase the property.

Annual Gross Rent Multiplier (GRM): This has supported the measurement of the value of the rental investment. The GRRM is now calculated from the division within the total sales price from the yearly gross rent. Subsequent Annual Cash Flow consists of approximating by subtracting the specified debt quantity from the net operating income. The number reflects the profit or loss you will have left soon afterward in covering the mortgage payments and the costs(Cox, 2022).

Learning the critical takeaways of return on investment, which assesses how much money or profit has been made on the investment from a percentage related to the expense concerning that investment. In calculating the rate for ROI, the cash purchase, where the net profit or even net gain on the investment, will become divided by the original cost. Additionally, variables will influence your ROI, entailing repair and maintenance of fees and your regular expenditures (Davis, 2022).

**OOP**

I have used OOP program project-oriented programming OOP benchmarks I have applied within the python class, which is RentalProPertyCalculator. Within the code has been where the class definition commences in defining the RentalPropertyCalculator class in utilizing the class constructor method utilizing the\_\_init\_\_method within the class has been a unique process that has been recognized as the constructor which has utilized countless parameters that are demonstrative of the inputs interconnected to the rental property while has assigned instance variables next, I utilized the self- keyword(Real Python, 2023).

All these comprising instance variables have held the state also fata, which was specified to every class instance. The class entails countless instance methods which operate the calculations interlinked to the rental property. These processes, for illustration, the calculate\_cash\_flow,calculate\_cap\_rate, and calculate\_montly payment, have been well-defined within the class and performed on the instance variables(Real Python, 2023).

**Encapsulation**

The class encapsulates connected data within instance variables and behavior methods within a sole entity. Thus, these instance variables alongside methods have been interwoven and embedded within the class, enabling more outstanding organization and modularity. On to the instance Formation and Method Innovation following well defining the class, an instance of RentalPropertyCalculator class has been formed utilizing inputs.

**Instance Formation and Method invoking**

After I have defined a class, the instance of the RentalPropertyCalculator class has been formed utilizing inputs. Wherein the instance has been stored within the calculator variable. Methods within the instance, such as calculate\_cash\_flosw,calculate\_cap\_rate, also calculate\_monthly\_payment, have been invoked within the calculator object to perform the wanted computations.

The object is related to object-oriented programming, whereas an object has a precise class instance. This demonstrates what a concrete entity with attributes alongside behavior which are methods. The instances of the rental property calculator class, for example, the calculator, have been recognized as objects. The attribute has been interlinked as a variable associated with an object, demonstrating both state or data of the RentalPropertyCalculator class, which has stored exact information connected to a rental property instance.

The function is a block within reusable code which operates the specific duty. Within OOP, functions that have been well-defined within the class are methods. In so, methods can function on objects concerning this specified class, within retrieving also alternating its attributes. I used the calculate Roi method, an illustration concerning the function within RentalPropertyCalculator class.

Within this code, I have used objects which are demonstrative of instances within the RentalPropertyCalculator class; it has encapsulated the data alongside conduct interlinked to the rental property calculations. My code includes attributes that have stored all the data. An attribute is a variable interrelated with a class or object, demonstrating the object's condition. For instance, RentalProperty Calculator class, the attributes are purchase\_price, monthly\_rent, and monthly\_expense, which are initialized through the \_\_init\_\_method. Therefore, the method is a function that has been classified within a class that functions within precise. Duties on objects about the specific class, Within the ROI, the calculate\_roi method tallies the return on investment ROI founded on the provided price, monthly rent, and monthly expenses. Inheritance is a vehicle within OOP that permits classes to inherit attributes or characteristics alongside methods from other classes. Within the offered code, we have not used inheritance or a dictionary explicitly.

Classes, therefore, exemplify the RentalPropertyCalculator, representing the format of the rental property calculator objects. This encapsulates the data attributes and behavior, which are methods connected to rental property calculations. RentalPropertyCalculator class using the line calculator =

Object the code forms an instance of the Rental PropertyCalculator(400,000,3000,1000). The calculator has been an object concerning RentalPropertyCalculator class and has held precise information which can perform calculations utilizing their methodologies. The Method where the code defines the calculate\_roi method within the RentalPropertyCalculator class. This Particular method has performed the calculations within the return on investment ROI established on the offered purchase price, monthly rent, and monthly expenses. Which all these attributes in calculating the return of the ROI value, my code does not utilize dictionaries or dictionary-associated functions. The concentration has been more so for my code in establishing a class and object. My overall concentration has been more so for this roi rental property assignment has been on instantiating objects, additionally performing the calculations using the class process (GeeksforGeeks, 2022) ; (python.org).

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