

TY CODING ASSIGNMENT 01

Create a python program to calculate Simple Interest and Compound interest for a loan over a specified period.

TASK 01

1. Ask the User for the loan amount.
2. Ask for the duration of the loan.
3. Ask for the Interest Rate in %
4. Calculate the Simple Interest of the Loan
5. Display the Amount of interest due and the total sum paid back.

TASK 02

1. Comment out the Code using `"""` (3 quotes either side of the code)
2. Copy the code and make the following modifications.
3. Change the calculation from simple interest to compound interest (See hint below)
4. Display the total amount of interest Due and the final amount paid back.

HERE ARE THE COMPONENTS NEEDED TO CALCULATE COMPOUND INTEREST:

PRINCIPAL AMOUNT (P)

RATE OF INTEREST IN DECIMAL FORM (R)

NUMBER OF TIMES THE INTEREST IS COMPOUNDED ANNUALLY (N)

OVERALL TENURE (T)

IF YOU KNOW THESE, THEN YOU'RE READY TO CALCULATE THE OWED AMOUNT. NOW, WHAT'S THE FORMULA FOR COMPOUND INTEREST?

HERE'S THE FORMULA FOR CALCULATING COMPOUND INTEREST: $CI = P (1+R/N)^{NT} - P$.

TO SOLVE, PLUG THE DESCRIBED INFORMATION INTO THE DESIGNATED SPOTS. THEN DIVIDE THE RATE (R) BY THE NUMBER OF TIMES COMPOUNDED (N) AND ADD IT TO ONE.

NEXT, MULTIPLY THE NUMBER OF TIMES THE INTEREST COMPOUNDS ANNUALLY (N) BY THE OVERALL TENURE AMOUNT (T). COMBINE THIS NUMBER AND THE PARENTHETICAL NUMBER, THEN MULTIPLY THIS NUMBER BY THE PRINCIPAL (P). VOILÀ! COMPOUND INTEREST CALCULATED.

TASK 03

1. Comment out the Code using `"""` (3 quotes either side of the code)
2. Copy the code and make the following modifications.
3. Ask the user which type of loan they are getting and display the relevant information as required (Hint: Copy the relevant blocks from the previous code used)

NOTES:

When working on this assignment use the 3 Bs where appropriate if you are stuck

B: Brain - try to solve the issue yourself first

B: Buddy - If you cannot solve the issue then ask a buddy for help

B: Browser - If your buddy can't help then look for a possible answer on the internet

ASSIGNMENT 02

Drawing a Simple House with Python Turtle

Your task is to create a simple house drawing using Python Turtle graphics. Follow the steps provided above to create the drawing. Your house should have the following features:

- A square base for the house
- A triangular roof on top of the square base
- A rectangular door in the centre of the house
- Two square windows on either side of the door
- A chimney on the roof

INSTRUCTIONS:

1. Start by importing the turtle module and creating a turtle object.
2. Set the turtle's speed to a reasonable value using the `speed()` method.
3. Use the `forward()` and `backward()` methods to move the turtle around the screen.
4. Use the `left()` and `right()` methods to turn the turtle in different directions.
5. Use the `penup()` and `pendown()` methods to control when the turtle should draw or not.
6. Use the `pencolor()` method to set the colour of the turtle's pen.
7. Use the `fillcolor()` method to set the colour of the turtle's fill.
8. Use the `begin_fill()` and `end_fill()` methods to fill in shapes with the chosen fill colour.
9. Use the `goto()` method to move the turtle to a specific location on the screen.
10. Use the `circle()` method to draw circles.
11. Use the `dot()` method to draw dots.
12. Use the `setheading()` method to set the turtle's direction.
13. Use the `write()` method to write text on the screen.
14. Use the `done()` method to exit the turtle graphics window.

OPTIONAL EXTENSION

Modify the above code to include any or all the following.

- Add a sun in the background: Use the turtle's `circle()` method to draw a yellow circle for the sun in the background. You can also use the `fillcolor()` method to fill the circle with yellow colour.
- Add a garden in front of the house: Use the turtle's `penup()` and `pendown()` methods to draw a green rectangle in front of the house. You can also use the `fillcolor()` method to fill the rectangle with green colour.
- Add a fence around the garden: Use the turtle's `penup()` and `pendown()` methods to draw a brown fence around the garden. You can use the `forward()` and `left()` methods to draw the fence.
- Add a driveway in front of the house: Use the turtle's `penup()` and `pendown()` methods to draw a gray driveway in front of the house. You can use the `forward()` and `left()` methods to draw the driveway.
- Add a different colour scheme: Modify the colours used in the original code to create a different colour scheme for the house. You can use any colours you like.
- Add a different style for the windows: Modify the code to create a different style for the windows of the house. You can use any style you like, such as a circular or arched window.

- Add a different style for the door: Modify the code to create a different style for the door of the house. You can use any style you like, such as a double door or a sliding door.