# ASSIGNMENT 2

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## Q1. Write a program to input electricity unit charges and calculate total electricity bill according to the given condition:

For first 50 units Rs. 0.50/unit

For next 100 units Rs. 0.75/unit

For next 100 units Rs. 1.20/unit

For unit above 250 Rs. 1.50/unit

An additional surcharge of 20% is added to the bill

In [2]:
```
units = int(input("Enter the number of electricity units consumed: "))

if units <= 50:
    bill = units * 0.50
elif units <= 150:
    bill = (50 * 0.50) + ((units - 50) * 0.75)
elif units <= 250:
    bill = (50 * 0.50) + (100 * 0.75) + ((units - 150) * 1.20)
else:
    bill = (50 * 0.50) + (100 * 0.75) + (100 * 1.20) + ((units - 250) * 1.50)

surcharge = bill * 0.20
total_bill = bill + surcharge

print("Base Bill: Rs.", bill)
print("Surcharge (20%): Rs.", surcharge)
print("Total Electricity Bill: Rs.", total_bill)
```

```
Base Bill: Rs. 88.0
Surcharge (20%): Rs. 17.6
Total Electricity Bill: Rs. 105.6
```

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## Q2. Write a program to check whether the last digit of a number (entered by user) is divisible by 3 or not.

In [3]:
```
number = int(input("Enter a number: "))
last_digit = number % 10

if last_digit % 3 == 0:
    print("The last digit (", last_digit, ") is divisible by 3.")
else:
    print("The last digit (", last_digit, ") is NOT divisible by 3.")
```

```
The last digit ( 3 ) is divisible by 3.
```

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## Q3. Write a program to display "Hello" if a number entered by user is a multiple of 5 and 7, otherwise print "Bye".

In [4]:
```
number = int(input("Enter a number: "))

if number % 5 == 0 and number % 7 == 0:
    print("Hello")
else:
    print("Bye")
```

```
Bye
```

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## Q4. A company decided to give bonus to employee according to following criteria:

| Period of Service | Bonus |
|---|---|
| More than 10 years | 10% |
| >=6 and <=10 | 8% |
| Less than 6 years | 5% |

Ask user for their salary and years of service and print the net bonus amount.

In [5]:
```
salary = float(input("Enter your salary: Rs. "))
years_of_service = int(input("Enter years of service: "))

if years_of_service > 10:
    bonus_percentage = 10
elif years_of_service >= 6:
    bonus_percentage = 8
else:
    bonus_percentage = 5

bonus_amount = salary * (bonus_percentage / 100)

print("Bonus Percentage:", bonus_percentage, "%")
print("Net Bonus Amount: Rs.", bonus_amount)
```

```
Bonus Percentage: 10 %
Net Bonus Amount: Rs. 123.4
```

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## Q5. Write a python program that takes a number.

If the number is divisible by 3, it should return "Fizz".

If it is divisible by 5, it should return "Buzz".

If it is divisible by both 3 and 5, it should return "FizzBuzz".

Otherwise, it should return the same number.

In [6]:
```
number = int(input("Enter a number: "))

if number % 3 == 0 and number % 5 == 0:
    print("FizzBuzz")
elif number % 3 == 0:
```

```
    print("Fizz")
elif number % 5 == 0:
    print("Buzz")
else:
    print(number)
```

```
12344
```

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## Q6. Write a program for checking the speed of drivers.

If speed is less than 70, it should print "Ok".
Otherwise, for every 5km above the speed limit (70), it should give the driver one demerit point and print the total number of demerit points. For example, if the speed is 80, it should print: "Points: 2".
If the driver gets more than 12 points, it should print: "License suspended"

In [7]:
```
speed = int(input("Enter the speed (km/h): "))

if speed < 70:
    print("Ok")
else:
    demerit_points = (speed - 70) // 5
    if demerit_points > 12:
        print("Points:", demerit_points)
        print("License suspended")
    else:
        print("Points:", demerit_points)
```

```
Points: 10
```

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## Q7. A year is a leap year if it is divisible by 4, except that years divisible by 100 are not leap years unless they are also divisible by 400. Write a program that asks the user for a year and prints out whether it is a leap year or not.

In [8]:
```
year = int(input("Enter a year: "))

if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
    print(year, "is a Leap Year.")
else:
    print(year, "is NOT a Leap Year.")
```

```
2024 is a Leap Year.
```

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## Q8. Write a program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade according to following:

Percentage >= 90% : Grade A

Percentage >= 80% : Grade B

Percentage >= 70% : Grade C

Percentage >= 60% : Grade D

Percentage >= 40% : Grade E

In [9]:
```
physics = float(input("Enter marks for Physics (out of 100): "))
chemistry = float(input("Enter marks for Chemistry (out of 100): "))
biology = float(input("Enter marks for Biology (out of 100): "))
mathematics = float(input("Enter marks for Mathematics (out of 100): "))
computer = float(input("Enter marks for Computer (out of 100): "))

total_marks = physics + chemistry + biology + mathematics + computer
percentage = (total_marks / 500) * 100

print("Total Marks:", total_marks, "/500")
print("Percentage:", percentage, "%")

if percentage >= 90:
    grade = "A"
elif percentage >= 80:
    grade = "B"
elif percentage >= 70:
    grade = "C"
elif percentage >= 60:
    grade = "D"
elif percentage >= 40:
    grade = "E"
else:
    grade = "Fail"

print("Grade:", grade)
```

```
Total Marks: 385.0 /500
Percentage: 77.0 %
Grade: C
```

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## Q9. Write a program to check whether the triangle is equilateral, isosceles or scalene triangle.

In [10]:
```
side1 = float(input("Enter the first side of the triangle: "))
side2 = float(input("Enter the second side of the triangle: "))
side3 = float(input("Enter the third side of the triangle: "))

if side1 == side2 == side3:
    print("The triangle is Equilateral (all sides are equal).")
elif side1 == side2 or side2 == side3 or side1 == side3:
    print("The triangle is Isosceles (two sides are equal).")
else:
    print("The triangle is Scalene (all sides are different).")
```

```
The triangle is Scalene (all sides are different).
```

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## Q10. Write a program that calculates the ticket price based on age with the following conditions: age below 12 pay a ticket price of 5, age below 18 pay a ticket price of 10, age below 60 pay a ticket price of 20, age over 60 play a ticket price of 15.

In [11]:
```
age = int(input("Enter your age: "))

if age < 12:
    ticket_price = 5
elif age < 18:
    ticket_price = 10
elif age < 60:
    ticket_price = 20
else:
    ticket_price = 15

print("Your ticket price is: Rs.", ticket_price)
```

```
Your ticket price is: Rs. 5
```

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## Q11. An automobile company manufactures both a two wheeler (TW) and a four wheeler (FW). A company manager wants to make the production of both types of vehicle according to the given data below:

1st data, Total number of vehicle (two-wheeler + four-wheeler)=v

2nd data, Total number of wheels = W

The task is to find how many two-wheelers as well as four-wheelers need to manufacture.

**Example:**

```
Input:
200  -> Value of V
540  -> Value of W

Output:
TW =130 FW=70
```

In [14]:
```
V = int(input("Enter the total number of vehicles (V): "))
W = int(input("Enter the total number of wheels (W): "))

FW = (W - 2 * V) // 2
TW = V - FW

if FW >= 0 and TW >= 0 and (TW + FW == V) and (2 * TW + 4 * FW == W):
    print("TW =", TW, ", FW =", FW)
else:
    print("Invalid input! The given values cannot produce valid vehicle counts."
```

```
TW = 201 , FW = 0
```