In [ ]:
```
1) Write a function called calculate_area that takes base and height as an
area = (1/2)*base*height
```

In [1]:
```
def calculate_area(base , height):
    area = 1/2 * base * height
    return area
base = float(input("Enter the value of base"))
height = float(input("Enter the height ="))
area = calculate_area(base,height)
print(area)
```

```
Enter the value of base34
Enter the height =34
578.0
```

In [ ]:
```
) Modify above function to take third parameter shape type. It can be eithe
rectangle area=length*width
If no shape is supplied then it should take triangle as a default shape
```

In [1]:
```
def calculate_area(base, height, shape_type="triangle"):


  if shape_type == "triangle":
    area = (1/2) * base * height
  elif shape_type == "rectangle":
    area = base * height
  else:

    area = (1/2) * base * height
    print("Shape type not specified. Assuming triangle.")

  return area

base = float(input("Enter the base: "))
height = float(input("Enter the height: "))

shape_type = input("Enter the shape type (triangle or rectangle): ")

area = calculate_area(base, height, shape_type)
print("The area of the", shape_type, "is:", area)
```

```
Enter the base: 34
Enter the height: 87
Enter the shape type (triangle or rectangle):
Shape type not specified. Assuming triangle.
The area of the  is: 1479.0
```

In [ ]:
```
 Write a function called print_pattern that takes integer number as an argu
    and prints following pattern if input number is 3,
*
**
***
if input is 4 then it should print

*
**
***
****
Basically number of lines it prints is equal to that number. (Hint: you nee
```

In [2]:
```
def print_pattern(number):
    for i in range(1, number + 1):
        for j in range(i):
            print("*", end="")
        print()

print_pattern(3)
print_pattern(4)
```

```
*
**
***
*
**
***
****
```

In [ ]:
```
 Write circle_calc() function that takes radius of a circle as an input fro
    and returns area, circumference and diameter.
    You should get these values in your main program by calling circle_calc
```

In [3]:
```
import math

def circle_calc(radius):
    area = math.pi * radius ** 2
    circumference = 2 * math.pi * radius
    diameter = 2 * radius
    return area, circumference, diameter

radius = float(input("Enter the radius of the circle: "))
area, circumference, diameter = circle_calc(radius)

print(f"Area: {area}")
print(f"Circumference: {circumference}")
print(f"Diameter: {diameter}")
```

```
Enter the radius of the circle: 23
Area: 1661.9025137490005
Circumference: 144.51326206513048
Diameter: 46.0
```

In [ ]:
```
Lets say you are running a 5 km race. Write a program that,

Upon completing each 1 km asks you "are you tired?"
If you reply "yes" then it should break and print "you didn't finish the ra
If you reply "no" then it should continue and ask "are you tired" on every
If you finish all 5 km then it should print congratulations message.
```

In [4]:
```
def run_race():
    for km in range(1, 6):
        tired = input(f"Completed {km} km. Are you tired? (yes/no): ").stri
        if tired == "yes":
            print("You didn't finish the race")
            return
    print("Congratulations! You finished the race.")

run_race()
```

```
Completed 1 km. Are you tired? (yes/no): no
Completed 2 km. Are you tired? (yes/no): no
Completed 3 km. Are you tired? (yes/no): no
Completed 4 km. Are you tired? (yes/no): no
Completed 5 km. Are you tired? (yes/no): no
Congratulations! You finished the race.
```

In [ ]:
```

```