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| *""" Shah soumil Nitin Bachelor in Elecctronic Engineering Master in Electrical Engineering Master in Computer Engineering  """* **''' we are asked to print the following pattern \* \*\* \*\*\* \*\*\*\* \*\*\*\*\* '''** *# Take input from user how many rows we require* n=int(input(**"Enter No of Rows to Print "**))  *# iterate over that number of rows* **for** i **in** range(1,n+1):  *# iterate for stars* **for** j **in** range(0,i):  print(end=**"\*"**)  *# after printing star go new line* print() |

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| *""" Shah soumil Nitin Bachelor in Elecctronic Engineering Master in Electrical Engineering Master in Computer Engineering  """* **''' we are asked to print the following pattern  \*  \*\*  \*\*\*  \*\*\*\* \*\*\*\*\* '''** *# input number of rows from user* n=int(input(**"Enter Number of Rows :"**))  *# iterate over number of rows* **for** i **in** range(1,n+1):  *# iterate to print spaces and decremeent space after each time* **for** j **in** range(0,n-i):  *# print space* print(end=**" "**)  *# iterate to print stars* **for** j **in** range(0,i):  *# print stars* print(end=**"\*"**)  *# end and go to new line* print() |

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| *""" Shah soumil Nitin Bachelor in Elecctronic Engineering Master in Electrical Engineering Master in Computer Engineering  """* **''' we are asked to print the following pattern  \*\*  \*\*\*\*  \*\*\*\*\*\*  \*\*\*\*\*\*\*\*   '''** *# take input of number of rows* n=int(input(**"Enter Number of Rows :-"**))  *# iterate over number of rows* **for** i **in** range(1,n+1):  *# iterate over to print spaces* **for** j **in** range(0,n-i):  *# print spaces* print(end=**" "**)  *# iterate to print star* **for** j **in** range(0,2\*i):  print(end=**"\*"**)  *# end line* print() |

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| *""" Shah soumil Nitin Bachelor in Elecctronic Engineering Master in Electrical Engineering Master in Computer Engineering  """ # Define Function to return morse code* **def** morse\_code(n):  *# store morse code in keys* keys=[**".-"**,**"-..."**,**"-.-."**,**"-.."**,**"."**,**"..-."**,**"--."**,**"...."**,**".."**,**".---"**,**"-.-"**,**".-.."**,**"--"**,**"-."**,  **"---"**,**".--."**,**"--.-"**,**".-."**,**"..."**,**"-"**,**"..-"**,**"...-"**,**".--"**,**"-..-"**,**"-.--"**,**"--.."**]  *# store alphabet in a list* alphabet= [**"a"**,**"b"**,**"c"**,**"d"**,**"e"**,**"f"**,**"g"**,**"h"**,**"i"**,**"j"**,**"k"**,**"l"**,**"m"**,**"n"**,**"o"**,**"p"**,**"q"**,**"r"**,**"s"**,**"t"**,**"u"**,**"v"**,**"w"**,**"x"**,**"y"**,**"z"**]  *# make a dictionary with alphabet as key and keys as value* dictionary= dict(zip(alphabet,keys))  *#return the required morse code from dict using get function* **return** dictionary.get(n)  *# take input from user* answer=input(**"ENTER Word"**) *#store input in list* answer=list(answer)  word=**""** *# iterate over list to extract individual elements using for loop* **for** x **in** answer:  *# call function for that req string  # join the string* word = word + morse\_code(x)  print(word) |

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| *""" Shah soumil Nitin Bachelor in Elecctronic Engineering Master in Electrical Engineering Master in Computer Engineering  """ # Define intital text to display on screen* text= **""" ---------------------------- Welcome to Robot Software  Please Enter  l/L for left  r/R fro Right  u/U for up d/D for down Enter your Input below ----------------------------- """** *# Define the function for robot* **def** is\_round(i):  x=0  y=0  *# set inital position as 0,0  # whatever strig user enter break it and fetch line by line to software* **for** i **in** i:  *# check for r if yes inc x* **if** i == **"r"**:  x=x+1  *# check for l if yes dec x* **if** i == **"l"**:  x=x-1  *# check for u if yes inc y* **if** i == **"u"**:  y=y+1  *# check for u if yes dec y* **if** i == **"d"**:  y=y-1  *# return the value of x and y check if its back and return True or False* **return** x==0 **and** y==0  *# Take input from userp and convert into lower* user=input(text).lower() *# pass input to function and return true or false* path = is\_round(user) print(path) *# check condition if its at start or made circle* **if** path == **True**:  print(**"You Are back at initial position"**) **else**:  print(**"You are not back at same position from where you have started "**) |

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| *""" Shah soumil Nitin Bachelor in Elecctronic Engineering Master in Electrical Engineering Master in Computer Engineering  """  # Define function to return true or false if its leap year* **''' There are three criteria to identify leap years: The year can be evenly divided by 4, is a leap year, unless: The year can be evenly divided by 100, it is NOT a leap year, unless: The year is also evenly divisible by 400. Then it is a leap year. This means that in the Gregorian calendar, the years 2000 and 2400 are leap years, while 1800, 1900, 2100, 2200, 2300 and 2500 are NOT leap years. '''   def** leayr(n):  **if** n % 400 == 0:  **return True  if** n % 100 == 0:  **return False  if** n % 4 == 0:  **return True  else**:  **return False** value = int(input(**"Enter Year to check if its a leap year or not "**)) *# return value* reply=leayr(value)  **if** reply== **True**:  print (**"{} is a leap year"**.format(value)) **else**:  print(**"{} is not a leap Year"**.format(value)) |

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| *""" Shah soumil Nitin Bachelor in Elecctronic Engineering Master in Electrical Engineering Master in Computer Engineering  """* text=**""" Welcome to 2's compliment software  please Enter Decimal number example:- 4  """    def** findComplement(num):   numWord=bin(num) *#converts decimal number to binary representation* numWord=numWord[2:] *#trims initial 2 chars from the string* length=len(numWord) *#calculates the length of the string* i=0  res=**''** *#Following loop would iterate for every char to convert it.* **while** i<length:  **if** numWord[i]==**'1'**:  res+=**'0'  else**:  res+=**'1'** i+=1  **return** res    **def** find2sComplement(num):  *# call the 1 comp* num\_1=findComplement(num)  *# define 001 to add it* num\_2=**"0001"** *#perform 2 comp* c = bin(int(num\_1,2) + int(num\_2,2))   z=c[2:]  *# call bin to dec and convert value* temp=binaryToDecimal(int(z))   **return** (c)    *# Function calculates the decimal equivalent # to given binary number* **def** binaryToDecimal(binary):   binary1 = binary  decimal, i, n = 0, 0, 0  **while**(binary != 0):  dec = binary % 10  decimal = decimal + dec \* pow(2, i)  binary = binary//10  i += 1   print(**"2 compliment Decimal Value "**,decimal)    user=int(input(text)) print(**"Decimal number is {} and Binary is {}"**.format(user,bin(user))) print(**"1's compliment is {}"**.format(findComplement(user))) print(**"2's Compliment {}"**.format(find2sComplement(user))) |