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9 (I) Converting a binary number to decimal.

```
binary = list (input ("Input a binary Number"))
ans = 0
for i in range(len(binary)):
    sudh = binary.pop()
    if sudh == '1':
        ans = ans + pow(2, i)
print("The decimal value of the binary number is =", ans).
```

F) Binary to octal.

```
print("Enter a binary no.")
bokade = int(input())
ans = 0
sudh = 0
i = 0.
while (bokade != 0):
    sudh = sud + (bokade % 10) * pow(2, i)
    i += 1
    bokade = bokade // 10.
= 1
hile (sudh != 0):
    ans = ans + (sudh % 8) * i
    sudh = sudh // 8.
    i = i * 10.
nt("octal value:", ans).
```

Algorithm for Binary to ~~Decimal~~ Octal

1) Input the binary number.
2) Divide the binary number into groups of three from right to left.
3) Find the decimal equivalent of each group from left to right gives the equivalent octal number. of the given binary number.

Algorithm to convert binary to decimal

1) Initialise variable binary to take user input of binary.
2) Create variable ans and initialise it with 0 [ans=0]
3) Run a for-loop to iterate over each digit of the binary
4) Pop a digit in every iteration and if the digit turns out to be 1.
5) Add digit to and by raising it to power of 2
6) Print decimal value by ans variable.

Q2 import random.

```
words=['India','Pakistan','China','Bhutan','Nepal'
       'SriLanka'].
word=random.choice(words)
print("Guess the characters")
guesses=''
turns_left=5.
while turns_left>0:
    failed=0.
    for char in word:
        if char in guesses:
            print(char,end='')
        else:
            print('_',end='')
            failed+=1.
    if failed==0:
        print("You win")
        print("The word is:", word)
        break.
    print()
    guess= input("guess a character:")
    guesses+=guess
    if guess not in word:
        turns_left-=1
        print("Wrong")
        print("You have", + turns_left,'more guesses')
        if turns_left=0:
            print("You loose")
```

Algorithm ~~for~~ for Q2

1) Import Random module.
2) Create a list of country names
3) Choose a random name from module by calling random function for random module store it in "word" variable.
4) Creating a string variable guess to take user input in it
5) Create variable to count number of chances user have
6) Start a for loop till number of chances become 0.
7) If user chances are 0 then exit.
8) In each iteration if user guesses correct letter then display the letter and remaining letter by "-"
9) If user guess wrong letter then ~~decrease~~ decrease number of chances.
10) If user gussed all the letter correctly, then game over.

Q3
```
l = [1, 1, 2, 3, 4, 3, 0, 0]
# intialising a set
s = {}
for i in l:
    set.add(i)
ans = []
for i in s:
    ans.append(i)
print(ans)
```

Algorithm.

- We know that set does not contain duplicate elements.
- Since we just have to remove the duplicate elements in the list, first, we add the elements of the list to the set.
- Then we create, another empty list called ans and append the elements of the set to the list.

Q4

```
s="ABCDEF"
s_copy=s
while(len(s)!=2):
    print(s)
    s=s.rstrip(s[-1])
print(s)
s=s.rstrip(s[-1])
for
while(len(s))=
print(s)
for i in range(1, len(s_copy)):
    s=s+s_copy[i]
    print(s)
```

Algorithm.

1) Create 2 variables s and s_copy and initialise both with "ABCDEF"
2) Run a while loop till the event when length of s is 2.
3) In each iteration, print s and remove the last element of string s.
4) When we get out of the loop, print s_copy and remove last element from s and print it.
5) Then run another for loop starting from the 1st index letter at index 1 of s_copy and concatenate it in s print 's' simultaneously
6) You get your pattern.

Q5

```
import random.
class Rock_Paper_Scissor:.
    player_score=0.
    computer_score=0.
    round=0.

    def __init__(self):
        self.round=int(input("Please enter No. of Rounds"))

    def start_game(self):
        while(self.round!=0):
            print("Enter choice\n 1 for Rock, \n 2 for Paper, and 3 for scissor")
            player_choice=input("Enter computer choice:")
            if(player_choice==computer_choice):
                print("Tie")
            elif(player_choice="Rock" and computer_choice="Scissor"):
                print("You win")
                self.player_score+=1
            elif(player_choice='Paper' and computer_choice=Rock):
                print("You win")
                self.player_score-=1
            elif(player_choice="Scissor" and computer_choice="Paper"):
                print("You win")
                self.player_score=+1
```

```
        else:
            print("You loose")
            self.computer_score+=1
        self.round-=1

    def Print_Report(self):
        print()
        print()
        print("There were total of {} Rounds".format
                                        (self.round))
        print("Player score:{}".format(self.player_score))
        print("Computer_score:{}".format(self.computer
                                        score))
        if(self.player_score>self.computer_score):
            print("Winner is {}".format(self.player_
        else:
            print("Winner is {}".format(self.computer_sc


obj=Rock_Paper_Sussor()
obj.start_game()
obj.Print_Report()
```

Algorithm.

1) Import the required libraries
2) Create a class for the game.
3) Create a function to start the game.
4) Print to the user option he can choose from
5) Take the user input from the user.
6) Take the input from the user [Computers Move]
7) Run till number of iterations get over.
8) Create a function to print the report.