



Autonomous Institute, Affiliated to Visvesvaraya Technological University, Belagavi (Approved by AICTE, New Delhi & Government of Karnataka) Accredited by NBA | NAAC with 'A' Grade



Department of CSE (Artificial Intelligence & Machine Learning)
Phone: +91 821-4276326, Email: hodaiml@vvce.ac.in

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# 

# **SET - 1**

# **Regular Programs**

# 9. The Captain's Room

```
k = int(input())
rooms = (int(x) for x in input().split(' '))
seen = {}

for i in rooms:
    if not i in seen:
        seen[i] = 1
    else:
        seen[i] += 1

for key, val in seen.items():
    if val != k:
        print(key)
```

## 10. Time Delta

# from datetime import datetime

```
if __name__ == '__main__':
    t = int(input())
    for _ in range(t):
        s1 = input()
        s2 = input()
        t1 = datetime.strptime(s1, "%a %d %b %Y %H:%M:%S %z")
        t2 = datetime.strptime(s2, "%a %d %b %Y %H:%M:%S %z")
        print(abs(int((t1-t2).total_seconds())))
```



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# 11. Map and Lambda Function

```
cube = lambda x: x**3 # complete the lambda function
def fibonacci(n):
  a=[]
  x=0
  y=1
  for i in range(0, n):
    a+=[x]
    x, y = y, x+y
  return a
if __name__ == '__main__':
  n = int(input())
  print(list(map(cube, fibonacci(n))))
```

## 12. Validating Credit Card Numbers

```
import re
n = int(input())
pattern1 = r'^[456]\d{15}$|^[456]\d{3}-\d{4}-\d{4}$'
pattern2 = r'(\d)\1{3,}|(\d)\2{1}-(\d)\3{1}|-(\d)\4{3,}-'
for i in range(n):
  s = input()
  if (re.search(pattern1, s)):
    if (re.search(pattern2, s)):
      print('Invalid')
    else:
      print('Valid')
```





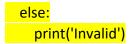
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## 13. Climbing stairs

```
class Solution:
    def climbStairs(self, n):
        if n == 1:
            return 1
        if n == 2:
            return 2
        return self.climbStairs(n - 1) + self.climbStairs(n - 2)

if __name__ == "__main__":
        n = int (input())
        result = Solution().climbStairs(n)
        print result
```

### 14. House Robber

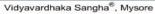
```
class Solution:
  def rob(self, nums):
    if len(nums) == 1:
      return nums[0]

    dp = [0] * len(nums)
    dp[0] = nums[0]
    dp[1] = max(nums[0], nums[1])

    for i in range(2, len(nums)):
      dp[i] = max(dp[i - 1], dp[i - 2] + nums[i])

    return dp[-1]

nums=[1,2,3,1]
print(Solution().rob(nums))
```





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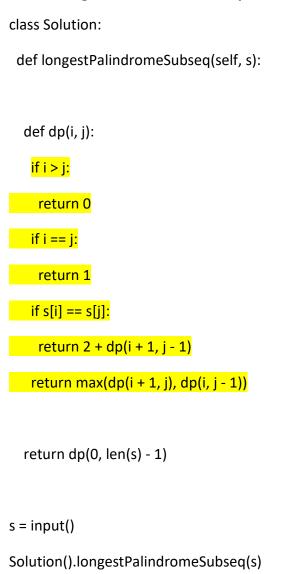
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# 15. Longest Palindromic subsequence







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# **Additional Programs**

```
6. ginortS
S = input()
def s(x):
 if x.islower():
    return ord(x)
 elif x.isupper():
    return ord(x)*100000
 elif x in "13579":
    return ord(x)*10000000000
    print(*sorted(S, key=s), sep=")
7. Text wrap
import textwrap
def wrap(string, max_width):
 return textwrap.TextWrapper(width=max_width).fill(text=string)
if __name__ == '__main__':
 string, max_width = input(), int(input())
 result = wrap(string, max_width)
  print(result)
8. Piling Up
import sys
def test cubes(cubes):
  t_cube = 0
  if cubes[0] > cubes[len(cubes)-1]:
```

Vidyavardhaka Sangha<sup>®</sup>, Mysore



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◎ ⑥ ☑ @ vvceofficial

```
t cube = cubes[0]
    cubes.pop(0)
  else:
    t cube = cubes[len(cubes)-1]
    cubes.pop(len(cubes)-1)
  while len(cubes) > 0:
    if t cube == cubes[0]:
      t cube = cubes.pop(0)
    elif t cube == cubes[len(cubes)-1]:
      t cube = cubes.pop(len(cubes)-1)
    elif (cubes[0] > cubes[len(cubes)-1]) and (t cube >= cubes[0]):
      t cube = cubes.pop(0)
    elif (cubes[0] < cubes[len(cubes)-1]) and (t_cube >= cubes[len(cubes)-1]):
      t cube = cubes.pop(len(cubes)-1)
    elif (cubes[0] == cubes[len(cubes)-1]):
      t_cube = cubes.pop(0)
    else:
      return "No"
  return "Yes"
num of tests = input()
num_of_tests = int(num_of_tests)
for i in range(0, num_of_tests):
  input()
  cubes = list(map(int, input().split(' ')))
  print(test cubes(cubes))
```