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SECTION: **CSE C-1**

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### **Lab No. 4 – BOOTSTRAP PYTHON BASICS (HOMEWORK)**

**(ALL CODES WERE WRITTEN IN IPYNB (JUPYTER NOTEBOOK))**

**Q1.** Write a python program to select smallest element from a list in an expected linear time.

```
arr = [12, 3, 45, 7, 1, 9]
print("Smallest element:", min(arr))
✓ 0.0s
```

Python

```
Smallest element: 1
```

**Q2.** Write a python program to implement bubble sort

```
arr = [5,1,4,2,8]

for i in range(len(arr)):
    for j in range(0, len(arr)-i-1):
        if arr[j] > arr[j+1]:
            arr[j], arr[j+1] = arr[j+1], arr[j]

print("Sorted array:", arr)
✓ 0.0s
```

Python

```
Sorted array: [1, 2, 4, 5, 8]
```

**Q3.** Write a python program to multiply two matrices.

```

A = [[1,2],[3,4]]
B = [[5,6],[7,8]]

result = [[0,0],[0,0]]

for i in range(2):
    for j in range(2):
        for k in range(2):
            result[i][j] += A[i][k] * B[k][j]

print("Result:", result)
✓ 0.0s

```

Python

```

Result: [[19, 22], [43, 50]]

```

**Q4.** Write a Python class to find validity of a string of parentheses, '(', ')', '{', '}', '[' and ']'. These brackets must be close in the correct order, for example "()" and "(){}{}" are valid but "[]", "({[]})" and "{{{" are invalid.

```

class Solution:
    def isValid(self, s):
        stack = []
        pairs = {')':'(', '}':'{', ']':'['}

        for ch in s:
            if ch in "([{":
                stack.append(ch)
            else:
                if not stack or stack[-1] != pairs[ch]:
                    return False
                stack.pop()
        return not stack

# s = input("Enter string: ")
s = "({()})"
print(Solution().isValid(s))
✓ 0.0s

```

Python

```

True

```

**Q5.** Write a python class to reverse a string word by word.

```

s = input("Enter string: ")
print("Reversed:", " ".join(s.split()[::-1]))
✓ 17.3s

```

Python

```

Reversed: word by word sentence this reverse lets

```

**Q6.** Write a Python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle.

```
class Circle:  
    def __init__(self, r):  
        self.r = r  
  
    def area(self):  
        return 3.14 * self.r * self.r  
  
    def perimeter(self):  
        return 2 * 3.14 * self.r  
  
c = Circle(5)  
print("Area:", c.area())  
print("Perimeter:", c.perimeter())
```

✓ 0.0s

Python

```
Area: 78.5  
Perimeter: 31.40000000000002
```