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BSCOE 2-6

Subject: Data Structure and Algorithm
Lab Activity: Python review
Deadline: Oct 2, 11:59pm
Upload your answer : https://docs.google.com/forms/d/e/1FAIpQLSdoc8mZxIanXUEOF_j5-1C1NCB9Makd-yTV2_WH_wROIVBOrQ/viewform?usp=pp_url

1. Diamond Shape:

   Write a Python function named print diamond that takes an odd integer n as an argument and prints a diamond shape with a width of n using the * character.

   For n = 5, the output should be:

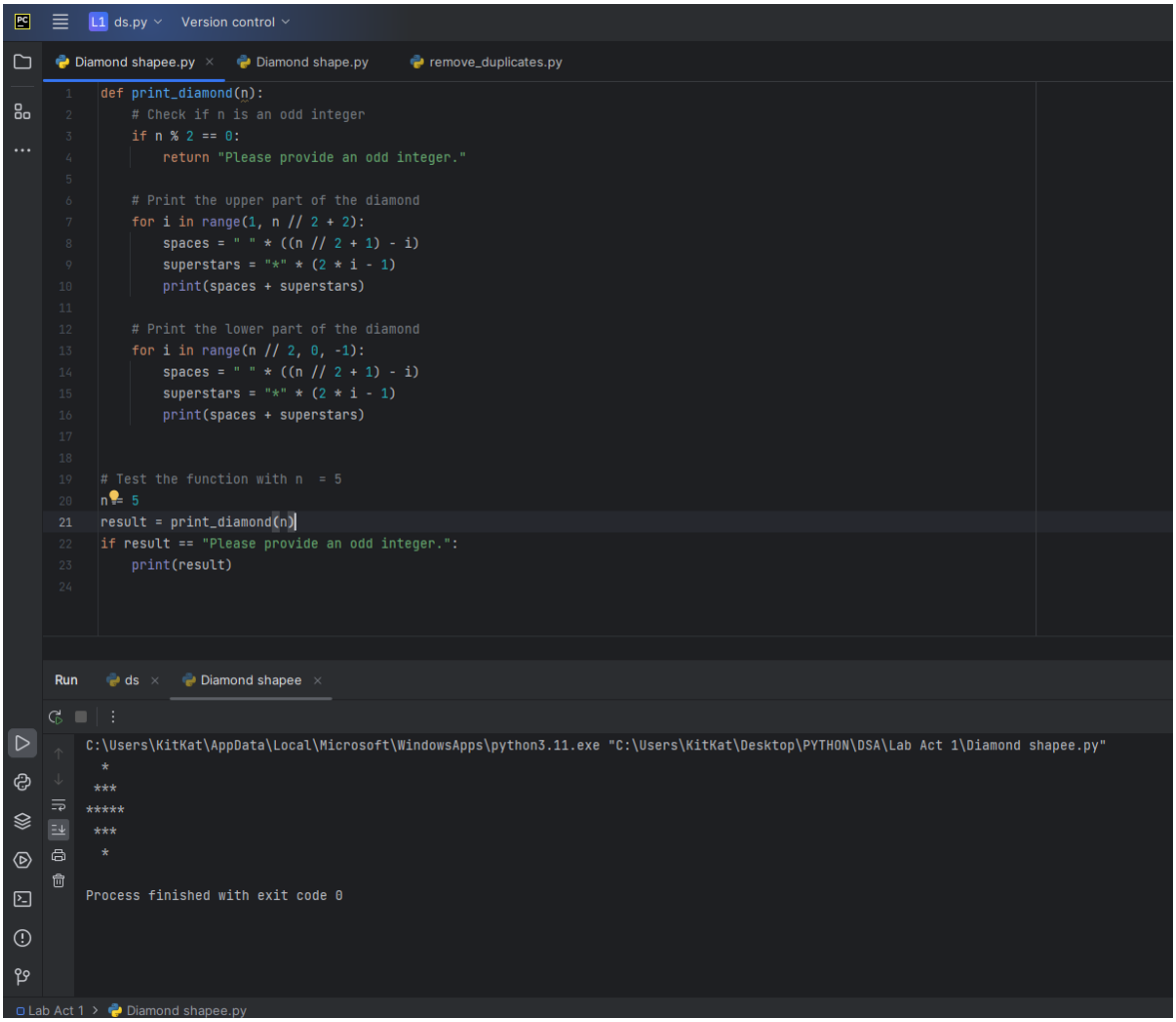
   ```
     *
    ***
   *****
    ***
     *
   ```

   Note: If an even number is passed, the function should return "Please provide an odd integer."

   SOURCE CODE:

```python
def print_diamond(n):
    # Check if n is an odd integer
    if n % 2 == 0:
        return "Please provide an odd integer."

    # Print the upper part of the diamond
    for i in range(1, n // 2 + 2):
        spaces = " " * ((n // 2 + 1) - i)
        superstars = "*" * (2 * i - 1)
        print(spaces + superstars)

    # Print the lower part of the diamond
    for i in range(n // 2, 0, -1):
        spaces = " " * ((n // 2 + 1) - i)
        superstars = "*" * (2 * i - 1)
        print(spaces + superstars)


# Test the function with n  = 5
n = 5
result = print_diamond(n)
if result == "Please provide an odd integer.":
    print(result)
```

OUTPUT



2. Create a program that will delete all duplicate characters in a string.

   Input starts with a number N and is followed by N strings

   Output: Print the character with all the duplicate characters removed.

   Sample Input #1

   4
   Harrenhal
   Drogos
   Thoros of Myr
   Iron Born

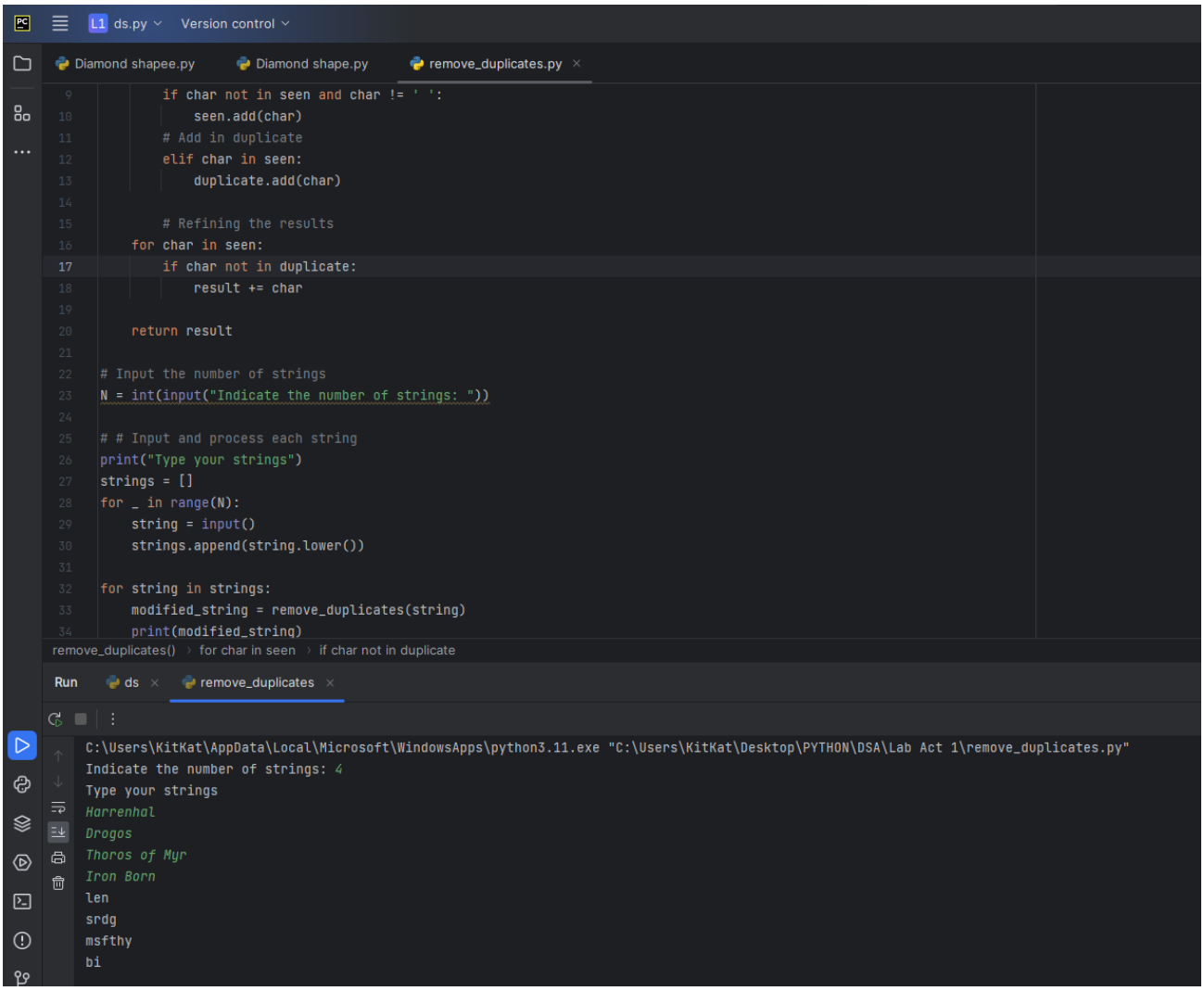
   Sample Output #1

   enl
   Drgs
   ThsfMy
   IB

C:

```
# Function to remove duplicate characters from a string
def remove_duplicates(input_str):
    result = ""
    seen = set()
    duplicate = set()

    for char in input_str:
        if char not in seen and char != ' ':
            seen.add(char)
        # Add in duplicate
        elif char in seen:
            duplicate.add(char)

        # Refining the results
    for char in seen:
        if char not in duplicate:
            result += char

    return result

# Input the number of strings
N = int(input("Indicate the number of strings: "))

# # Input and process each string
print("Type your strings")
strings = []
for _ in range(N):
    string = input()
    strings.append(string.lower())

for string in strings:
    modified_string = remove_duplicates(string)
    print(modified_string)
```

OUTPUT


ds.py
Version control
Diamond shapee.py
Diamond shape.py
remove_duplicates.py
if char not in seen and char != ' ':
seen.add(char)
# Add in duplicate
elif char in seen:
duplicate.add(char)
# Refining the results
for char in seen:
if char not in duplicate:
result += char
return result
# Input the number of strings
N = int(input("Indicate the number of strings: "))
# # Input and process each string
print("Type your strings")
strings = []
for _ in range(N):
string = input()
strings.append(string.lower())
for string in strings:
modified_string = remove_duplicates(string)
print(modified_string)
remove_duplicates() › for char in seen › if char not in duplicate
Run
ds
remove_duplicates
C:\Users\KitKat\AppData\Local\Microsoft\WindowsApps\python3.11.exe "C:\Users\KitKat\Desktop\PYTHON\DSA\Lab Act 1\remove_duplicates.py"
Indicate the number of strings: 4
Type your strings
Harrenhal
Drogos
Thoros of Myr
Iron Born
len
srdg
msfthy
bi

3. What is the output of the code below:

```
for i in range(2):
    for j in range(2):
        print(i, j)
    else:
        print("Inner End")
else:
    print("Outer End")
```