

DA LAB 6

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Simulate RPC (Create any one procedure on remote machine and call it from local machine) List of programs for RPC

1. String is palindrome or not.
2. Find out if a given year is a Leap Year or not.
3. Find out the GCD of a given number.
4. Find out the Square root of a given number.
5. Swap two variables without using the 3rd variable.
6. Calculate Maximum, Minimum, average of given array.
7. Compare the given two strings.
8. Find out whether a given string is substring or not.
9. Concatenate the two strings.
10. Reverse the elements of an array.

Code

server.py

```
import rpyc
import math
from rpyc.utils.server import ThreadedServer

class CalculatorService(rpyc.Service):
    def exposed_is_palindrome(self, s):
        print(s)
```

```
    return s[::-1] == s

def exposed_is_leap_year(self, year):
    return year % 4 == 0 and (year % 100 != 0 or year % 400 == 0)

def exposed_gcd(self, a, b):
    return math.gcd(a, b)

def exposed_sqrt(self, a):
    return a**0.5

def exposed_swap_variables(self, a, b):
    a ^= b
    b ^= a
    a ^= b
    return [a, b]

def exposed_min_max_avg(self, l):
    sum = 0
    for x in l:
        sum += x

    avg = sum / len(l)
    return [max(l), min(l), avg]

def exposed_compare_strings(self, s1, s2):
```

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        return s1 < s2

    def exposed_is_substring(self, s1, s2):

        return s1 in s2

    def exposed_concat_strings(self, s1, s2):

        return s1 + s2

    def exposed_reverse_array(self, l):

        return l[::-1]

if __name__ == "__main__":

    server = ThreadedServer(CalculatorService, port = 12345)

    print("Server started")

    server.start()

```

client.py

```

import rpyc

conn = rpyc.connect("localhost", 12345)

while True:

    print("Select option:")

    c = input("""

    q. Quit Program

```

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```
""")

if c == "q":
    break

elif c == "1":
    s = input("Enter string to test: ")
    print(f"Palindrome: {conn.root.is_palindrome(s)}")

elif c == "2":
    year = int(input("Enter the year: "))
    print(f"Leap year: {conn.root.is_leap_year(year)}")

elif c == "3":
    a = int(input("Enter number 1: "))
    b = int(input("Enter number 2: "))
    print(f"GCD: {conn.root.gcd(a, b)}")

elif c == "4":
    a = int(input("Enter a number: "))
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    print(f"Square Root: {conn.root.sqrt(a)}")

elif c == "5":

    a = int(input("Enter number 1: "))

    b = int(input("Enter number 2: "))

    print(conn.root.swap_variables(a, b))

elif c == "6":

    l = [int(x) for x in input("Enter space separated numbers: ").split()]

    print(l)

    print(conn.root.min_max_avg(l))

elif c == "7":

    s1 = input("Enter string 1: ")

    s2 = input("Enter string 2: ")

    print(f"{s1} comes before {s2}: {conn.root.compare_strings(s1, s2)}")

elif c == "8":

    s1 = input("Enter string 1: ")

    s2 = input("Enter string 2: ")

    print(f"{s1} is substring of {s2}: {conn.root.is_substring(s1, s2)}")

elif c == "9":

    s1 = input("Enter string 1: ")

    s2 = input("Enter string 2: ")

    print(conn.root.concat_strings(s1, s2))

elif c == "10":

    l = [int(x) for x in input("Enter space separated numbers: ").split()]

    print(conn.root.reverse_array(l))
```

Output

```
Select option:
    q. Quit Program
    1. String is palindrome or not
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1
Enter string to test: sas
Palindrome: True
Select option:
    q. Quit Program
    1. String is palindrome or not
    2. Is the year a leap year or not
    3. GCD of the given two numbers
    4. Square root of a given number
    5. Swap two variables
    6. Maximum, Minimum, average of given array
    7. Compare two strings
    8. Is string substring or not
    9. Concatenate two strings
    10. Reverse the elements of an array
2
Enter the year: 2012
Leap year: True
Select option:
    q. Quit Program
    1. String is palindrome or not
    2. Is the year a leap year or not
    3. GCD of the given two numbers
    4. Square root of a given number
    5. Swap two variables
    6. Maximum, Minimum, average of given array
    7. Compare two strings
    8. Is string substring or not
    9. Concatenate two strings
    10. Reverse the elements of an array
3
Enter number 1: 14
Enter number 2: 49
GCD: 7
Select option:
```

Enter a number: 8
Square Root: 2.8284271247461903
Select option:

- q. Quit Program
 - 1. String is palindrome or not
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 - 5. Swap two variables
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- 5

Enter number 1: 4
Enter number 2: 7
[7, 4]
Select option:

- q. Quit Program
 - 1. String is palindrome or not
 - 2. Is the year a leap year or not
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 - 4. Square root of a given number
 - 5. Swap two variables
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 - 7. Compare two strings
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- 6

Enter space separated numbers: 7 8 45 3 1
[7, 8, 45, 3, 1]
[45, 1, 12.8]
Select option:

- q. Quit Program
 - 1. String is palindrome or not
 - 2. Is the year a leap year or not
 - 3. GCD of the given two numbers
 - 4. Square root of a given number
 - 5. Swap two variables
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- 7

Enter string 1: sahil
Enter string 2: asahil
sahil comes before asahil: False

7

Enter string 1: sahil
Enter string 2: asahil
sahil comes before asahil: False
Select option:

- q. Quit Program
 - 1. String is palindrome or not
 - 2. Is the year a leap year or not
 - 3. GCD of the given two numbers
 - 4. Square root of a given number
 - 5. Swap two variables
 - 6. Maximum, Minimum, average of given array
 - 7. Compare two strings
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- 8

Enter string 1: sahil
Enter string 2: asassahilsas
sahil is substring of asassahilsas: True
Select option:

- q. Quit Program
 - 1. String is palindrome or not
 - 2. Is the year a leap year or not
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 - 4. Square root of a given number
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- 9

Enter string 1: abc
Enter string 2: def
abcdef
Select option:

- q. Quit Program
 - 1. String is palindrome or not
 - 2. Is the year a leap year or not
 - 3. GCD of the given two numbers
 - 4. Square root of a given number
 - 5. Swap two variables
 - 6. Maximum, Minimum, average of given array
 - 7. Compare two strings
 - 8. Is string substring or not
 - 9. Concatenate two strings
 - 10. Reverse the elements of an array
- 10

Enter space separated numbers: 7 6 5 4
[4, 5, 6, 7]