UNIVERSITY INSTITUTE of COMPUTING
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NAAC GRADE A+ ACCREDITED UNIVERSITY

Experiment 1.2

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Section/Group: MCD-1/ Grp B
Semester: I
Date of Performance: 21th Sept 22
Subject Name: Python Programming Lab
Subject Code: 22CAH-645

1) Task to be done:

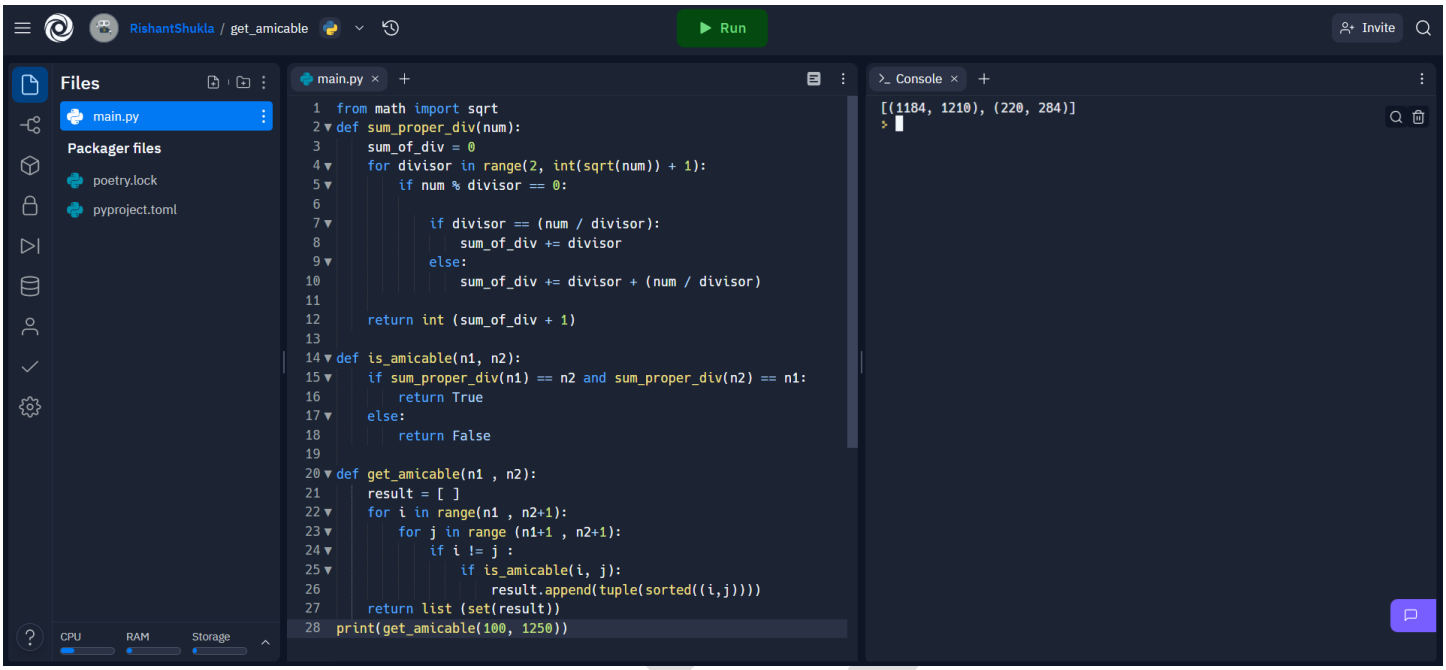
A) Two different numbers are called amicable numbers if the sum of the proper divisors of each is equal to the other number. For example 220 and 284 are amicable numbers. Sum of proper divisors of 220 = 1+2+4+5+10+11+20+22+44+55+110 = 284. Sum of proper divisors of 284 = 1+2+4+71+142 = 220. Write a function to print pairs of amicable numbers in a range.

2) Code for experiment/practical:

```
from math import sqrt

def sum_proper_div(num):
    sum_of_div = 0
    for divisor in range(2, int(sqrt(num)) + 1):
        if num % divisor == 0:

            if divisor == (num / divisor):
                sum_of_div += divisor
            else:
                sum_of_div += divisor + (num / divisor)

    return int (sum_of_div + 1)

def is_amicable(n1, n2):
    if sum_proper_div(n1) == n2 and sum_proper_div(n2) == n1:
        return True
    else:
        return False

def get_amicable(n1 , n2):
    result = [ ]
    for i in range(n1 , n2+1):
        for j in range (n1+1 , n2+1):
            if i != j :
                if is_amicable(i, j):
                    result.append(tuple(sorted((i,j))))
```

```
    return list (set(result))

print(get_amicable(100, 1250))
```

3) Output (screenshots):



4) Learning Outcomes (What I have learned):

1. Learned about Amicable numbers.

2. Learned how to import libraries.

Evaluation Grid:

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Demonstration and Performance (Quiz)		22
2.	Worksheet		8