

**Name - Yash Lakhtariya**  
**Enrollment number - 21162101012**  
**Branch - CBA    Batch - 41**  
**FP Practical 1**

**Institute of Computer Technology**  
**B. Tech Computer Science and Engineering**

**Sub: (2CSE403) FUNCTIONAL PROGRAMMING**

**Practical 1**

1. Shyam wants to know age of his grandfather who was born on 5th June,1947. Kindly help shyam to know how old is his grandfather? Also, print the calendar for the month and year on which shyam's grandfather was born.

**Code :**

```
import calendar
import datetime

bday = datetime.date(1947, 5, 6)
today = datetime.date.today()

age = int((today - bday).days / 365.2425)

print("\nThe age of Shyam's Grandfather born on {0} as per {1} is {2} years".format(bday, today, age))

print("\nThe calendar of his birth month is : \n" +
calendar.month(bday.year, bday.month))
print("\nThe calendar of his birth year is : \n" +
calendar.calendar(bday.year))
```

**Output :**

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The image shows a VS Code editor window with a dark theme. The left sidebar displays a file explorer with three files: `prac_1.1.py`, `prac_1.2.py`, and `prac_1.3.py`. The `prac_1.1.py` file is open in the editor, showing the following Python code:

```
1 import calendar
2 import datetime
3
4 bday = datetime.date(1947, 5, 6)
5 today = datetime.date.today()
6
7 age = int((today - bday).days / 365.2425)
8
9 print("\nThe age of Shyam's Grandfather born on {0} as per {1} is {2} years".format(bday, today, age))
10
11 print("\nThe calendar of his birth month is : \n" + calendar.month(bday.year, bday.month))
12 print("\nThe calendar of his birth year is : \n" + calendar.calendar(bday.year))
13
```

The right sidebar shows the output of the script, which is displayed in a terminal window. The output is as follows:

```
/usr/bin/python3 /home/yash/Documents/sem4practicals/FP/YSL_python/prac_1.1.py

The age of Shyam's Grandfather born on 1947-05-06 as per 2023-01-05 is 75 years

The calendar of his birth month is :
    May 1947
Mo Tu We Th Fr Sa Su
                1  2  3  4
    5  6  7  8  9 10 11
   12 13 14 15 16 17 18
   19 20 21 22 23 24 25
   26 27 28 29 30 31

The calendar of his birth year is :
    1947

    January                February                March
Mo Tu We Th Fr Sa Su    Mo Tu We Th Fr Sa Su    Mo Tu We Th Fr Sa Su
    1  2  3  4  5              1  2                  1  2
    6  7  8  9 10 11 12      3  4  5  6  7  8  9      3  4  5  6  7  8  9
   13 14 15 16 17 18 19      10 11 12 13 14 15 16      10 11 12 13 14 15 16
   20 21 22 23 24 25 26      17 18 19 20 21 22 23      17 18 19 20 21 22 23
   27 28 29 30 31            24 25 26 27 28              24 25 26 27 28 29 30
                                           31

    April                May                June
Mo Tu We Th Fr Sa Su    Mo Tu We Th Fr Sa Su    Mo Tu We Th Fr Sa Su
    1  2  3  4  5  6              1  2  3  4                  1
    7  8  9 10 11 12 13      5  6  7  8  9 10 11      2  3  4  5  6  7  8
   14 15 16 17 18 19 20      12 13 14 15 16 17 18      9 10 11 12 13 14 15
   21 22 23 24 25 26 27      19 20 21 22 23 24 25      16 17 18 19 20 21 22
   28 29 30                  26 27 28 29 30 31      23 24 25 26 27 28 29
                                           30
```

The status bar at the bottom of the editor shows the following information: `YSL_python > prac_1.1.py`, `54:1`, `LF`, `UTF-8`, `4 spaces`, `Python 3.11`.

The screenshot shows a VS Code editor with a Python file named `prac_1.1.py`. The script calculates the age of Shyam's grandfather and prints the calendar for his birth month and year. The output shows the age as 7 and the calendar for April 1947.

```

1 import calendar
2 import datetime
3
4 bday = datetime.date(1947, 5, 6)
5 today = datetime.date.today()
6
7 age = int((today - bday).days / 365.2425)
8
9 print("\nThe age of Shyam's Grandfather born on {0} as per {1} is {2} years".format(bday, today, age))
10
11 print("\nThe calendar of his birth month is : \n" + calendar.month(bday.year, bday.month))
12 print("\nThe calendar of his birth year is : \n" + calendar.calendar(bday.year))
13

```

The output of the script is displayed in the terminal window, showing the age as 7 and the calendar for April 1947.

```

7
The age of Shyam's Grandfather born on 1947-05-06 as per 2025-04-04 is 7 years
The calendar of his birth month is :
April 1947
Mo Tu We Th Fr Sa Su
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30

The calendar of his birth year is :
April May June
Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su
1 2 3 4 5 6 1 2 3 4 1 2 3 4 5 6 7
7 8 9 10 11 12 13 5 6 7 8 9 10 11 2 3 4 5 6 7 8
14 15 16 17 18 19 20 12 13 14 15 16 17 18 9 10 11 12 13 14 15
21 22 23 24 25 26 27 19 20 21 22 23 24 25 16 17 18 19 20 21 22
28 29 30 26 27 28 29 30 31 23 24 25 26 27 28 29
30

July August September
Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su
1 2 3 4 5 6 1 2 3 1 2 3 4 5 6 7
7 8 9 10 11 12 13 4 5 6 7 8 9 10 8 9 10 11 12 13 14
14 15 16 17 18 19 20 11 12 13 14 15 16 17 15 16 17 18 19 20 21
21 22 23 24 25 26 27 18 19 20 21 22 23 24 22 23 24 25 26 27 28
28 29 30 31 25 26 27 28 29 30 31 29 30

October November December
Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su
1 2 3 4 5 1 2 1 2 3 4 5 6 7
6 7 8 9 10 11 12 3 4 5 6 7 8 9 8 9 10 11 12 13 14
13 14 15 16 17 18 19 10 11 12 13 14 15 16 15 16 17 18 19 20 21
20 21 22 23 24 25 26 17 18 19 20 21 22 23 22 23 24 25 26 27 28
27 28 29 30 31 24 25 26 27 28 29 30 29 30 31

Process finished with exit code 0

```

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2. In an online game competition, a registration form has to be filled up by user. Kindly help user to perform following operation while submitting form.

- a. User have to submit their detail and a message should be displayed indicating filled details.
- b. Also submitting time of the form should be noted indicating when the form was last edited.

**Code : (With validity check for input data)**

```
import datetime

print("\n\t\tRegistration Form for online game competition\n")

teamornot = int(input("Individual Application(type 1) or Team\nApplication(type 2)? \n"))

if teamornot == 1:
    name = str(input("Name : "))

    age = int(input("Age : "))
    while age < 12 or age > 100:
        age = int(input("Please input valid age between 12 and 100 : "))

    contact = int(input("Contact : "))
    while len(str(contact)) != 10:
        contact = int(input("Valid Contact : "))

    nofgms = int(input("Enter number of games you want to participate : "))
    games = []
    for i in range(0, nofgms):
        g = input('Game {} : '.format(i+1))
        games.append(g)
    timenow = datetime.datetime.now()
```

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```
print("\n\tDetails given : \n")
print("Name - {}".format(name))
print("Age - {}".format(age))
print("Contact - {}".format(contact))
for i in range(0, nofgms):
    print("Game {0} - {1}".format(i+1, games[i]))
print("Timestamp of filling form : {}".format(timenow))

elif teamornot == 2:
    nofmbtrs = int(input("Enter number of members in the team : "))

    lname = str(input("Leader Name : "))
    mbrname = [{'Leader Name': lname}]
    for i in range(0, nofmbtrs-1):
        m = input("Name of Member {} : ".format(i+1))
        mbrname.append({'Member {} Name'.format(i+1): m})

    lage = int(input("\nLeader Age : "))
    while lage < 12 or lage > 100:
        lage = int(input("Valid Leader Age between 12 and 100 : "))
    mbrage = [{'Leader Age': lage}]
    for i in range(0, nofmbtrs-1):
        a = int(input('Member {} Age : '.format(i+1)))
        while a < 12 or a > 100:
            a = int(input('Valid Age of Member {} : '.format(i+1)))
        mbrage.append({'Member {} Age'.format(i+1): str(a)})

    lcontact = int(input("\nLeader Contact : "))
    while len(str(lcontact)) != 10:
        lcontact = int(input("Valid Leader Contact : "))
    mbrcontact = [{'Leader Contact': str(lcontact)}]
    for i in range(0, nofmbtrs-1):
        c = int(input("Member {} Contact : ".format(i+1)))
```

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```
while len(str(c)) != 10:
    c = int(input("Valid Member {} Contact : ".format(i+1)))
    mbrcontact.append({"Member {}".format(i+1): str(c)})

nofgms = int(input("\nEnter number of games you want to participate :
"))
games = [{}]
for i in range(0, nofgms):
    g = str(input('Game {} : '.format(i+1)))
    games.append({"Game {}".format(i+1): g})
timenow = datetime.datetime.now()

print("\n\tDetails given : \n")
for i in range(0, nofmbros):
    print(str(mbrname[i]).replace("'", "").replace("{", ""
    "").replace("}", "").replace(":", " -"))
    print(str(mbrage[i]).replace("'", "").replace("{", "").replace("}", ""
    "").replace(":", " -"))
    print(str(mbrcontact[i]).replace("'", "").replace("{", ""
    "").replace("}", "").replace(":", " -"))
    print("\n")
    for i in range(1, nofgms+1):
        print(str(games[i]).replace("'", "").replace("{", "").replace("}", ""
        "").replace(":", " -"))
    print("Timestamp of filling form : {}".format(timenow))
else:
    print("Invalid Input!")
```

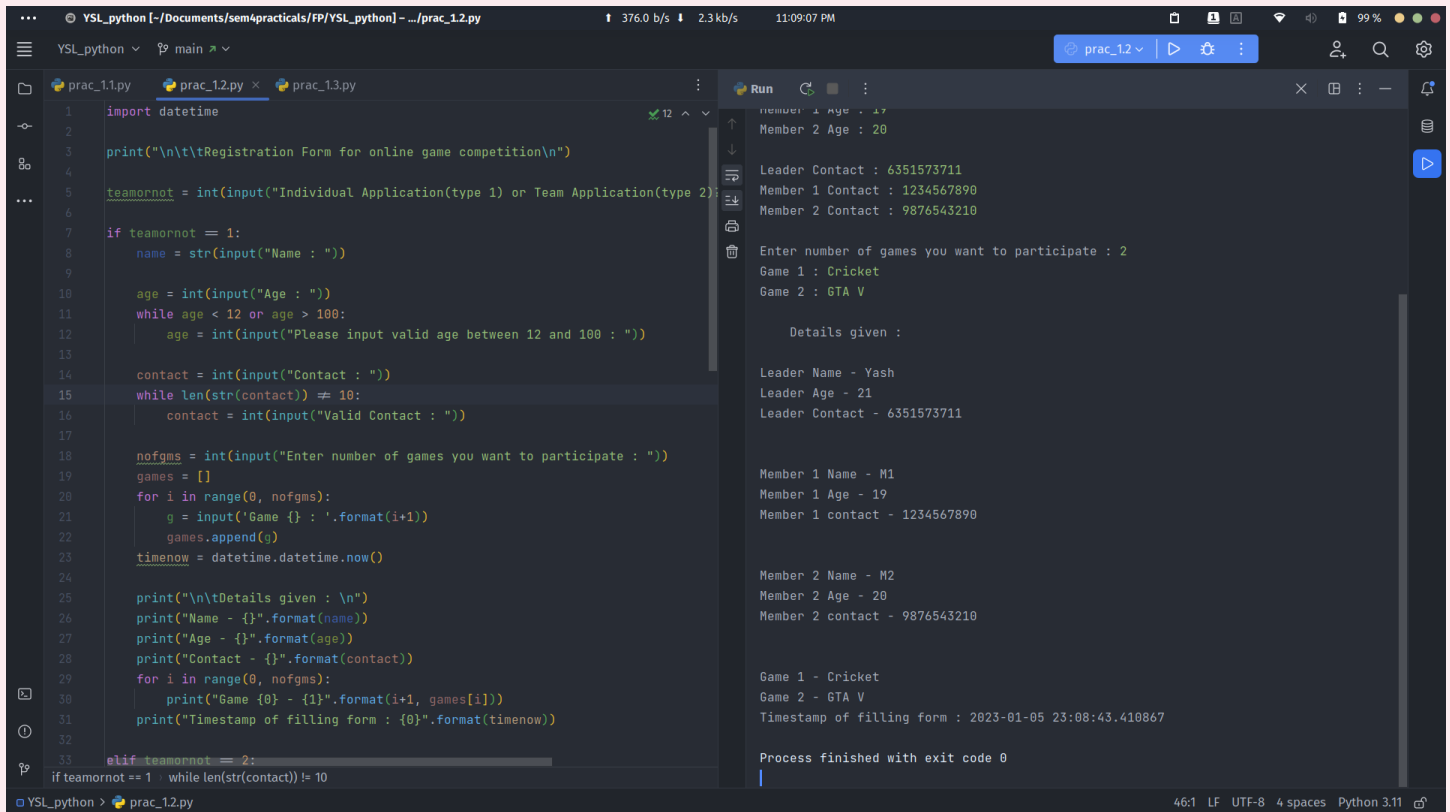
**Output : (For individual and team registration)**

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```
YSL_python [-/Documents/sem4practicals/FP/YSL_python] - .../prac_1.2.py
11.3 kb/s 23.0 kb/s 11:07:34 PM
YSL_python > main >
prac_1.1.py x prac_1.2.py x prac_1.3.py
1 import datetime
2
3 print("\n\t\tRegistration Form for online game competition\n")
4
5 teamornot = int(input("Individual Application(type 1) or Team Application(type 2):"))
6
7 if teamornot == 1:
8     name = str(input("Name : "))
9
10    age = int(input("Age : "))
11    while age < 12 or age > 100:
12        age = int(input("Please input valid age between 12 and 100 : "))
13
14    contact = int(input("Contact : "))
15    while len(str(contact)) != 10:
16        contact = int(input("Valid Contact : "))
17
18    nofgms = int(input("Enter number of games you want to participate : "))
19    games = []
20    for i in range(0, nofgms):
21        g = input('Game {} : '.format(i+1))
22        games.append(g)
23    timenow = datetime.datetime.now()
24
25    print("\n\tDetails given : \n")
26    print("Name - {}".format(name))
27    print("Age - {}".format(age))
28    print("Contact - {}".format(contact))
29    for i in range(0, nofgms):
30        print("Game {} - {}".format(i+1, games[i]))
31    print("Timestamp of filling form : {}".format(timenow))
32
33 elif teamornot == 2:
34     if teamornot == 1 while len(str(contact)) != 10
Run
/usr/bin/python3 /home/yash/Documents/sem4practicals/FP/YSL_python/prac_1.2.py
Registration Form for online game competition
Individual Application(type 1) or Team Application(type 2)?
1
Name : Yash Lakhtariya
Age : 987
Please input valid age between 12 and 100 : 21
Contact : 000012894984
Valid Contact : 6351573711
Enter number of games you want to participate : 3
Game 1 : Demo1
Game 2 : Demo2
Game 3 : Demo3
Details given :
Name - Yash Lakhtariya
Age - 21
Contact - 6351573711
Game 1 - Demo1
Game 2 - Demo2
Game 3 - Demo3
Timestamp of filling form : 2023-01-05 23:07:26.239481
Process finished with exit code 0
```

```
YSL_python [-/Documents/sem4practicals/FP/YSL_python] - .../prac_1.2.py
1.4 kb/s 2.5 kb/s 11:08:50 PM
YSL_python > main >
prac_1.1.py x prac_1.2.py x prac_1.3.py
1 import datetime
2
3 print("\n\t\tRegistration Form for online game competition\n")
4
5 teamornot = int(input("Individual Application(type 1) or Team Application(type 2):"))
6
7 if teamornot == 1:
8     name = str(input("Name : "))
9
10    age = int(input("Age : "))
11    while age < 12 or age > 100:
12        age = int(input("Please input valid age between 12 and 100 : "))
13
14    contact = int(input("Contact : "))
15    while len(str(contact)) != 10:
16        contact = int(input("Valid Contact : "))
17
18    nofgms = int(input("Enter number of games you want to participate : "))
19    games = []
20    for i in range(0, nofgms):
21        g = input('Game {} : '.format(i+1))
22        games.append(g)
23    timenow = datetime.datetime.now()
24
25    print("\n\tDetails given : \n")
26    print("Name - {}".format(name))
27    print("Age - {}".format(age))
28    print("Contact - {}".format(contact))
29    for i in range(0, nofgms):
30        print("Game {} - {}".format(i+1, games[i]))
31    print("Timestamp of filling form : {}".format(timenow))
32
33 elif teamornot == 2:
34     if teamornot == 1 while len(str(contact)) != 10
Run
/usr/bin/python3 /home/yash/Documents/sem4practicals/FP/YSL_python/prac_1.2.py
Registration Form for online game competition
Individual Application(type 1) or Team Application(type 2)?
2
Enter number of members in the team : 3
Leader Name : Yash
Name of Member 1 : M1
Name of Member 2 : M2
Leader Age : 21
Member 1 Age : 19
Member 2 Age : 20
Leader Contact : 6351573711
Member 1 Contact : 1234567890
Member 2 Contact : 9876543210
Enter number of games you want to participate : 2
Game 1 : Cricket
Game 2 : GTA V
Details given :
Leader Name - Yash
Leader Age - 21
Leader Contact - 6351573711
Member 1 Name - M1
Member 1 Age - 19
Member 1 contact - 1234567890
```

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The screenshot shows a Python IDE with a file named `prac_12.py`. The code implements a registration form for an online game competition. It prompts the user to enter their name, age, contact number, and the number of games they want to participate in. It then prints the details of the registered member and the games they want to participate in. The output shows the details for a member named Yash, age 21, contact 6351573711, who wants to participate in 2 games: Cricket and GTA V. The timestamp of filling the form is 2023-01-05 23:08:43.410867.

```
1 import datetime
2
3 print("\n\t\tRegistration Form for online game competition\n")
4
5 teamornot = int(input("Individual Application(type 1) or Team Application(type 2): "))
6
7 if teamornot == 1:
8     name = str(input("Name : "))
9
10    age = int(input("Age : "))
11    while age < 12 or age > 100:
12        age = int(input("Please input valid age between 12 and 100 : "))
13
14    contact = int(input("Contact : "))
15    while len(str(contact)) != 10:
16        contact = int(input("Valid Contact : "))
17
18    nofgms = int(input("Enter number of games you want to participate : "))
19    games = []
20    for i in range(0, nofgms):
21        g = input('Game {} : '.format(i+1))
22        games.append(g)
23    timenow = datetime.datetime.now()
24
25    print("\n\tDetails given : \n")
26    print("Name - {}".format(name))
27    print("Age - {}".format(age))
28    print("Contact - {}".format(contact))
29    for i in range(0, nofgms):
30        print("Game {} - {}".format(i+1, games[i]))
31    print("Timestamp of filling form : {}".format(timenow))
32
33 elif teamornot == 2:
34     if teamornot == 1 - while len(str(contact)) != 10
```

Output:

```
Member 1 Age : 19
Member 2 Age : 20
Leader Contact : 6351573711
Member 1 Contact : 1234567890
Member 2 Contact : 9876543210
Enter number of games you want to participate : 2
Game 1 : Cricket
Game 2 : GTA V
Details given :
Leader Name - Yash
Leader Age - 21
Leader Contact - 6351573711
Member 1 Name - M1
Member 1 Age - 19
Member 1 contact - 1234567890
Member 2 Name - M2
Member 2 Age - 20
Member 2 contact - 9876543210
Game 1 - Cricket
Game 2 - GTA V
Timestamp of filling form : 2023-01-05 23:08:43.410867
Process finished with exit code 0
```

3. Given a number game one needs to generate any random number; iterate through the all digits present and print the sum of all digits.

Here is a sample run:

Enter a number between 0 and 1000:43

The sum of the digits is 7

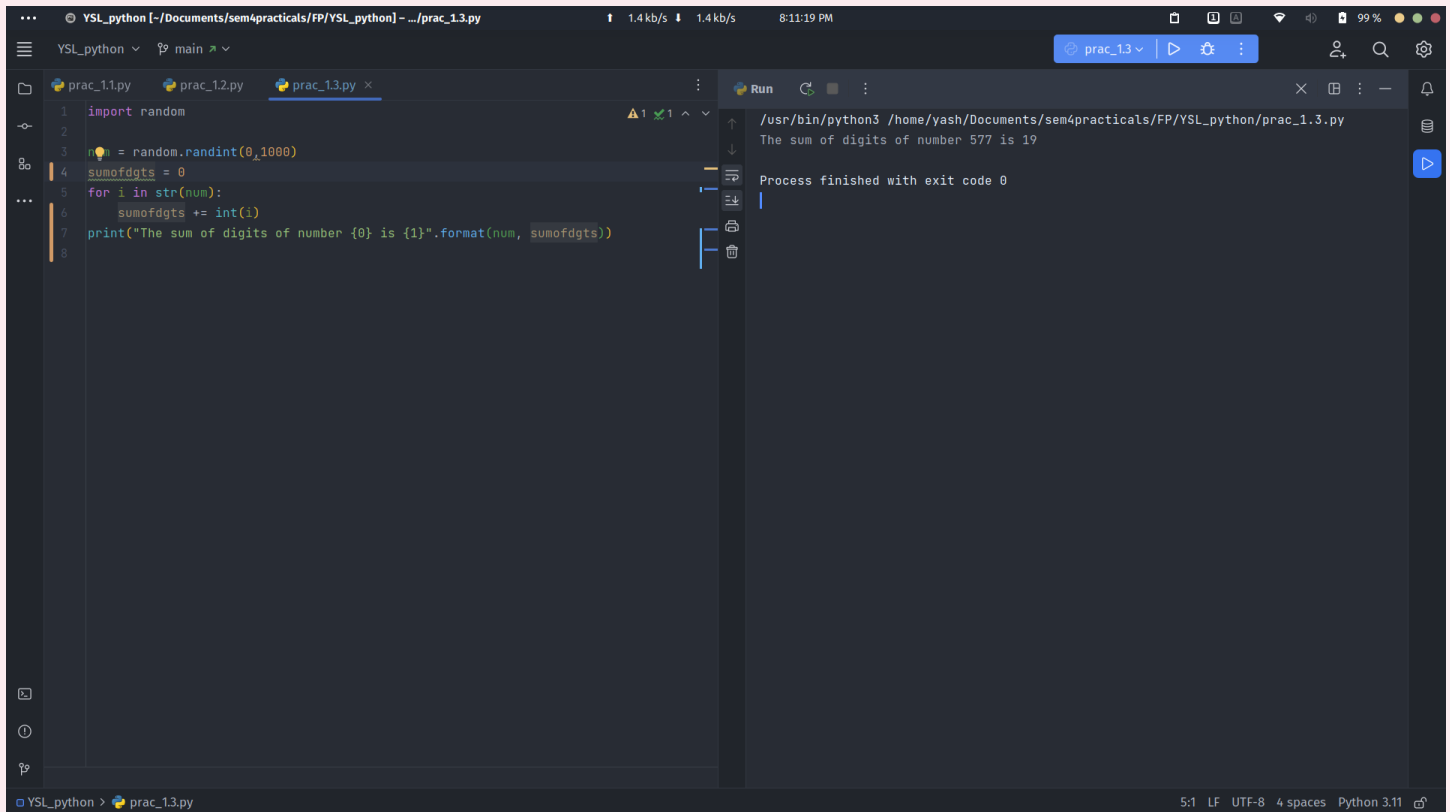
**Code :**

```
import random

num = random.randint(0, 1000)
sumofdgt = 0
for i in str(num):
    sumofdgt += int(i)
print("The sum of digits of number {0} is {1}".format(num, sumofdgt))
```

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## **Output :**



The screenshot shows a code editor with a dark theme. The left pane displays a Python script named `prac_1.3.py` with the following code:

```
1 import random
2
3 num = random.randint(0,1000)
4 sumofdgts = 0
5 for i in str(num):
6     sumofdgts += int(i)
7 print("The sum of digits of number {0} is {1}".format(num, sumofdgts))
8
```

The right pane shows the output of the script, which is:

```
/usr/bin/python3 /home/yash/Documents/sem4practicals/FP/YSL_python/prac_1.3.py
The sum of digits of number 577 is 19

Process finished with exit code 0
```

The status bar at the bottom indicates the file is `prac_1.3.py`, the encoding is `UTF-8`, there are `4 spaces` per tab, and the interpreter is `Python 3.11`.