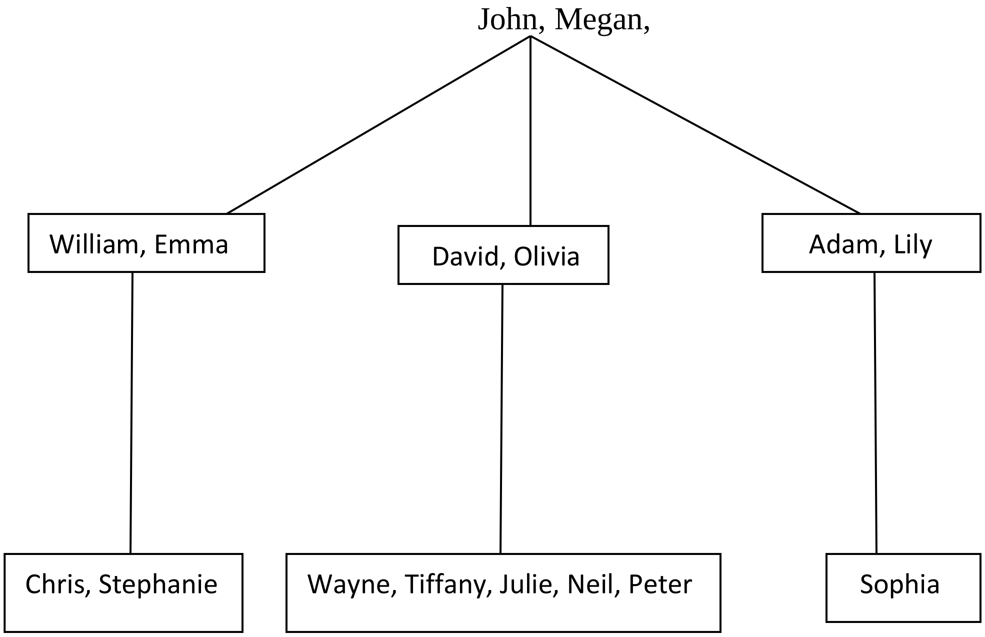
AI ASSIGNMENT

INT-404

Question : " The question is to make system for family tree. The system is expected to store all your close blood relations. And, system have to tell, what is the name of the relationship between any two given person ."

1.ABSTRACT :

This project covers methods used for solving the family tree. In this project articles have been written describing personal genealogy or family history projects, genograms, and family chronologies as exercises for teaching in a variety of disciplines including family studies and data is available to support the claims of effectiveness. Basically the system is all about describing the family tree in expectation to store all the close blood relations. Here is an example for family tree :



2.INTRODUCTION :

Let us consider an example of family tree in AI. John and Megan have three sons - William, David, and Adam. The wives of William, David, and Adam are Emma, Olivia, and Lily respectively. William and Emma have two children – Chris and

Stephanie. David and Olivia have five children – Wayne, Tiffany, Julie, Neil, and Peter. Adam and Lily have one child – Sophia. Now based on these facts, we can create a program that can tell us the name of Wayne's grandfather or Sophia's uncles are. Even though we have not explicitly specified anything about the grandparent or uncle relationships, logic programming can infer them. Those relationships are specified in the facts provided for you. In Introduction part this example is taken only to understand that what we are actually going to do in this project.

3.LITERATURE REVIEW :

In this section we have to write what we read for our project like algorithm, or some other part to understand the basic concepts of projects easily. So here first introduced LogPy – LogPy is a library for logic and relational programming in Python. This post contains some introductory examples, informative examples. LogPy enables the expression of relations and the search for values which satisfy them. The following code is the "Hello World!" of logic programming. It ask for one number x, such that x == 5. Multiple variables and multiple goals can be used simultaneously. LogPy uses unification, an advanced form of pattern matching, to match within expression trees. We can write other fancier goals too. We often want to state and then query data.Logic programming represents data a set of facts and represents queries with logical goals.

4.PROPOSED METHODOLOGY:

In this section i.e. proposed methodology the following actual code which we are using in our project will be explained. At first we are importing relation from LogPy facts, run, fact and then we define the facts like parent, father, mother, wife as relation without any argument initially.

Then we have written a function for the parent and passed x, y as argument ,

Similarly we have also written functions for grandfather and passed x, z as argument inside and then defining sibling, uncle, maternal uncle – and passed x, y argument inside and also taking a temporary variable.

We have given here relation list numbering starts from 1 to 9 – Child, Father, Mother, Parent, Grandfather, Sibling, Uncle, Maternal Uncle, and Wife. In this we'll print Enter the no. of relation that we want to find and from the next line taking the input from the user. Now how we can find the relation among them, by putting the n values from 1-9 and satisfy the condition. Like…

Suppose If n==1 which means we want to find the child relation. Also enter the name of parent for that and then we'll print the above defined part.

If n==2 which means we want to find the father relation, for that enter the name of child and print the defined part.

If n==3 which means we want to find the mother relation, for that also enter the child name.

If n==4 which means we want to find the parent of child relation, for that also we'll be print the child name.

If n==5 which means we want to find the grandfather relation. Enter the name of grandson to find his grandfather's name.

If n==6 which means we want to find the sibling relation, for that we have to enter any one name of the sibling.

If n==7 which means we want to find the uncle relation, for that we have to enter the child's name whose uncle name we wanna find.

If n==8 which means we want to find the maternal uncle relation, for that enter the child's name whose maternal uncle name we wanna find.

If n==9 which means we want to find the wife relation, simply enter the name of husband.

And if while implementing the program the number exceeds from 9 or if it is zero, the else part will simply print enter the valid number of the relation from the above list and "Try again Later".So here it is the explaination of the program.

5.RESULT AND DISCUSSION:

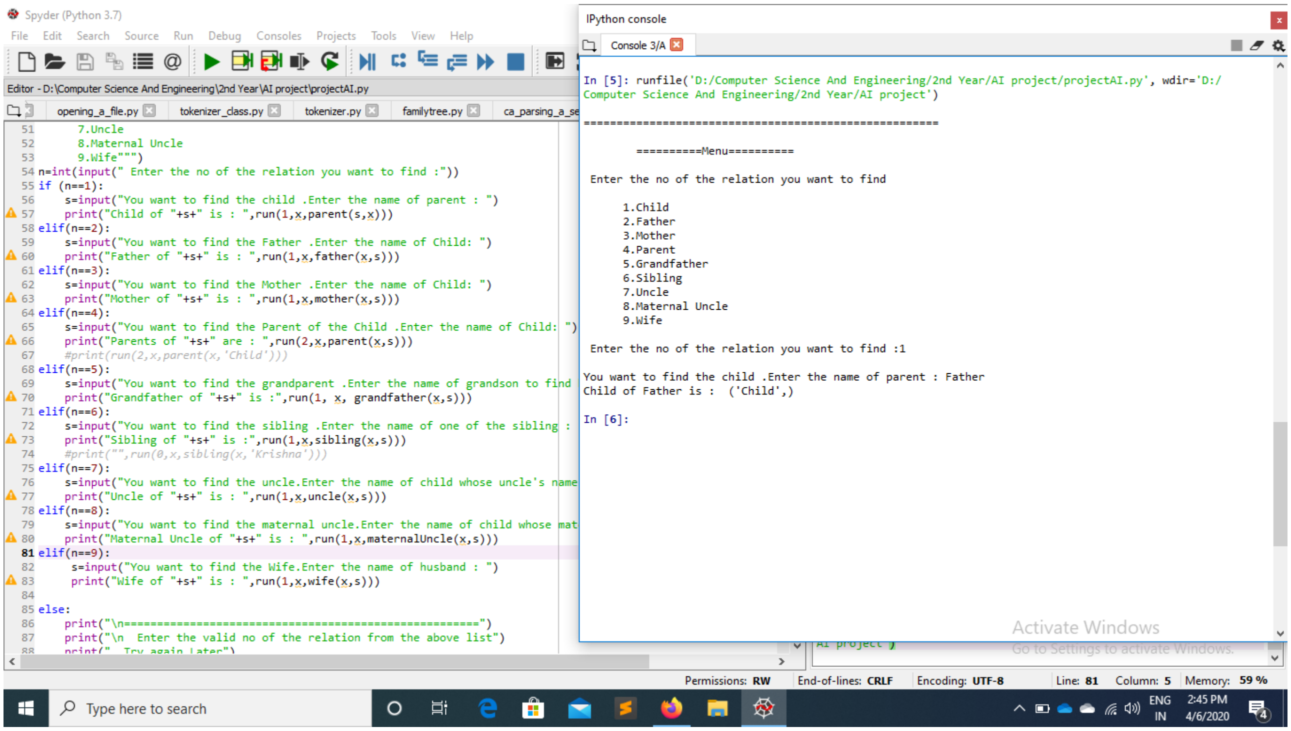
The result of this program will help you to get all the blood relation mentioned in our program . As it is explained in the above topics about the program and the blood relation.Here are some point to get the output for the above

1.As the program is made in python ,Logpy library is installed.

2.A logic for finding the blood relation is mentioned in the program.

3.The program is later sub-divided into 9 parts.

4.The output for the program is mentioned below:



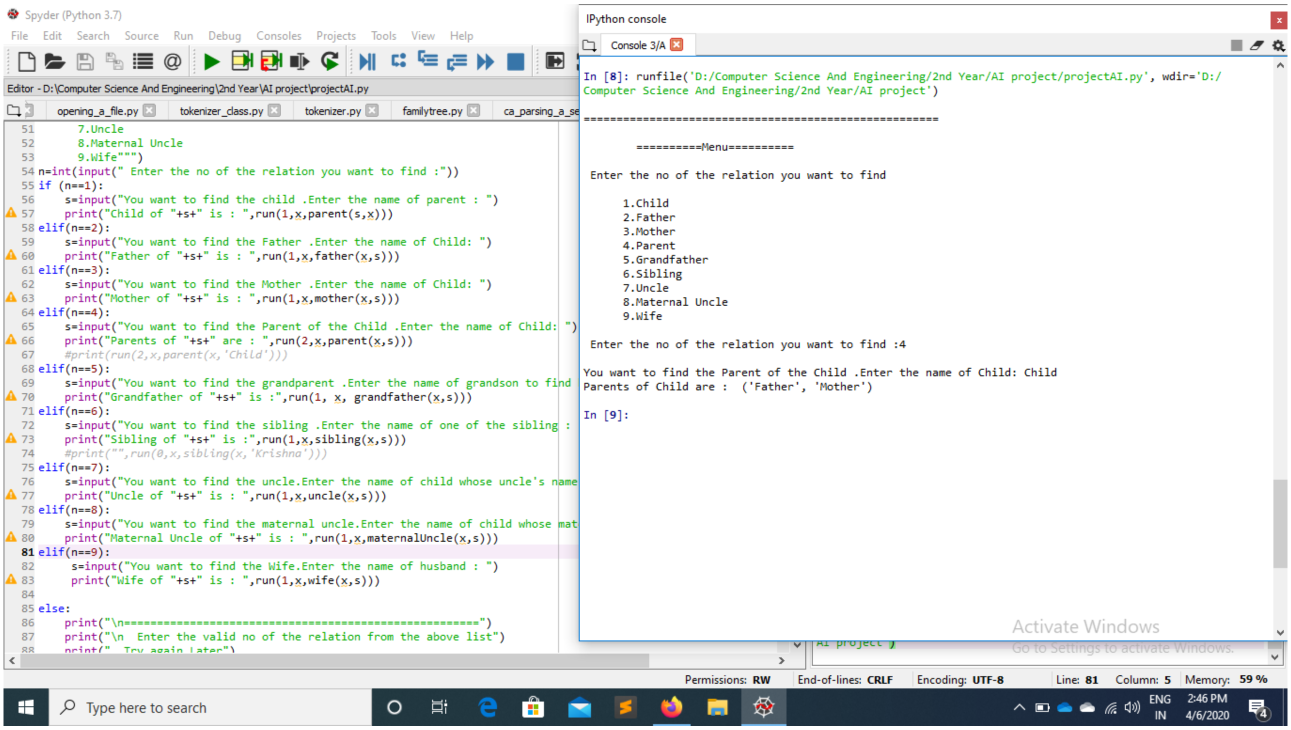
```
        7.Uncle
        8.Maternal Uncle
        9.Wife""")
n=int(input(" Enter the no of the relation you want to find :"))
if (n==1):
    s=input("You want to find the child .Enter the name of parent : ")
    print("Child of "+s+" is : ",run(1,x,parent(s,x)))
elif(n==2):
    s=input("You want to find the Father .Enter the name of Child: ")
    print("Father of "+s+" is : ",run(1,x,father(x,s)))
elif(n==3):
    s=input("You want to find the Mother .Enter the name of Child: ")
    print("Mother of "+s+" is : ",run(1,x,mother(x,s)))
elif(n==4):
    s=input("You want to find the Parent of the Child .Enter the name of Child: ")
    print("Parents of "+s+" are : ",run(2,x,parent(x,s)))
    #print(run(2,x,parent(x,'Child')))
elif(n==5):
    s=input("You want to find the grandparent .Enter the name of grandson to find
    print("Grandfather of "+s+" is :",run(1, x, grandfather(x,s)))
elif(n==6):
    s=input("You want to find the sibling .Enter the name of one of the sibling :
    print("Sibling of "+s+" is :",run(1,x,sibling(x,s)))
    #print("",run(0,x,sibling(x,'Krishna')))
elif(n==7):
    s=input("You want to find the uncle.Enter the name of child whose uncle's name
    print("Uncle of "+s+" is : ",run(1,x,uncle(x,s)))
elif(n==8):
    s=input("You want to find the maternal uncle.Enter the name of child whose mat
    print("Maternal Uncle of "+s+" is : ",run(1,x,maternalUncle(x,s)))
elif(n==9):
     s=input("You want to find the Wife.Enter the name of husband : ")
     print("Wife of "+s+" is : ",run(1,x,wife(x,s)))

else:
    print("\n=====================================================")
    print("\n  Enter the valid no of the relation from the above list")
    print("  Try again Later")
```

```
In [5]: runfile('D:/Computer Science And Engineering/2nd Year/AI project/projectAI.py', wdir='D:/
Computer Science And Engineering/2nd Year/AI project')

=====================================================

       ==========Menu==========

 Enter the no of the relation you want to find

      1.Child
      2.Father
      3.Mother
      4.Parent
      5.Grandfather
      6.Sibling
      7.Uncle
      8.Maternal Uncle
      9.Wife

 Enter the no of the relation you want to find :1

You want to find the child .Enter the name of parent : Father
Child of Father is :  ('Child',)

In [6]:
```

Input :1

As in the above output no-1 is chosen and the blood relation of no.1is displayed.

Output : Child of father is: Child


Spyder (Python 3.7)
File Edit Search Source Run Debug Consoles Projects Tools View Help
Editor - D:\Computer Science And Engineering\2nd Year\AI project\projectAI.py
opening_a_file.py tokenizer_class.py tokenizer.py familytree.py ca_parsing_a_se
IPython console
Console 3/A
Activate Windows
Go to Settings to activate Windows.
Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 81 Column: 5 Memory: 59 %
Type here to search
ENG IN 2:46 PM 4/6/2020

```
       7.Uncle
       8.Maternal Uncle
       9.Wife""")
n=int(input(" Enter the no of the relation you want to find :"))
if (n==1):
    s=input("You want to find the child .Enter the name of parent : ")
    print("Child of "+s+" is : ",run(1,x,parent(s,x)))
elif(n==2):
    s=input("You want to find the Father .Enter the name of Child: ")
    print("Father of "+s+" is : ",run(1,x,father(x,s)))
elif(n==3):
    s=input("You want to find the Mother .Enter the name of Child: ")
    print("Mother of "+s+" is : ",run(1,x,mother(x,s)))
elif(n==4):
    s=input("You want to find the Parent of the Child .Enter the name of Child: ")
    print("Parents of "+s+" are : ",run(2,x,parent(x,s)))
    #print(run(2,x,parent(x,'Child')))
elif(n==5):
    s=input("You want to find the grandparent .Enter the name of grandson to find
    print("Grandfather of "+s+" is :",run(1, x, grandfather(x,s)))
elif(n==6):
    s=input("You want to find the sibling .Enter the name of one of the sibling :
    print("Sibling of "+s+" is :",run(1,x,sibling(x,s)))
    #print("",run(0,x,sibling(x,'Krishna')))
elif(n==7):
    s=input("You want to find the uncle.Enter the name of child whose uncle's name
    print("Uncle of "+s+" is : ",run(1,x,uncle(x,s)))
elif(n==8):
    s=input("You want to find the maternal uncle.Enter the name of child whose mat
    print("Maternal Uncle of "+s+" is : ",run(1,x,maternalUncle(x,s)))
elif(n==9):
     s=input("You want to find the Wife.Enter the name of husband : ")
     print("Wife of "+s+" is : ",run(1,x,wife(x,s)))

else:
    print("\n=======================================================")
    print("\n  Enter the valid no of the relation from the above list")
    print("  Try again Later")
```

```
In [8]: runfile('D:/Computer Science And Engineering/2nd Year/AI project/projectAI.py', wdir='D:/
Computer Science And Engineering/2nd Year/AI project')

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        ==========Menu==========

 Enter the no of the relation you want to find

      1.Child
      2.Father
      3.Mother
      4.Parent
      5.Grandfather
      6.Sibling
      7.Uncle
      8.Maternal Uncle
      9.Wife

 Enter the no of the relation you want to find :4

You want to find the Parent of the Child .Enter the name of Child: Child
Parents of Child are :  ('Father', 'Mother')

In [9]:
```
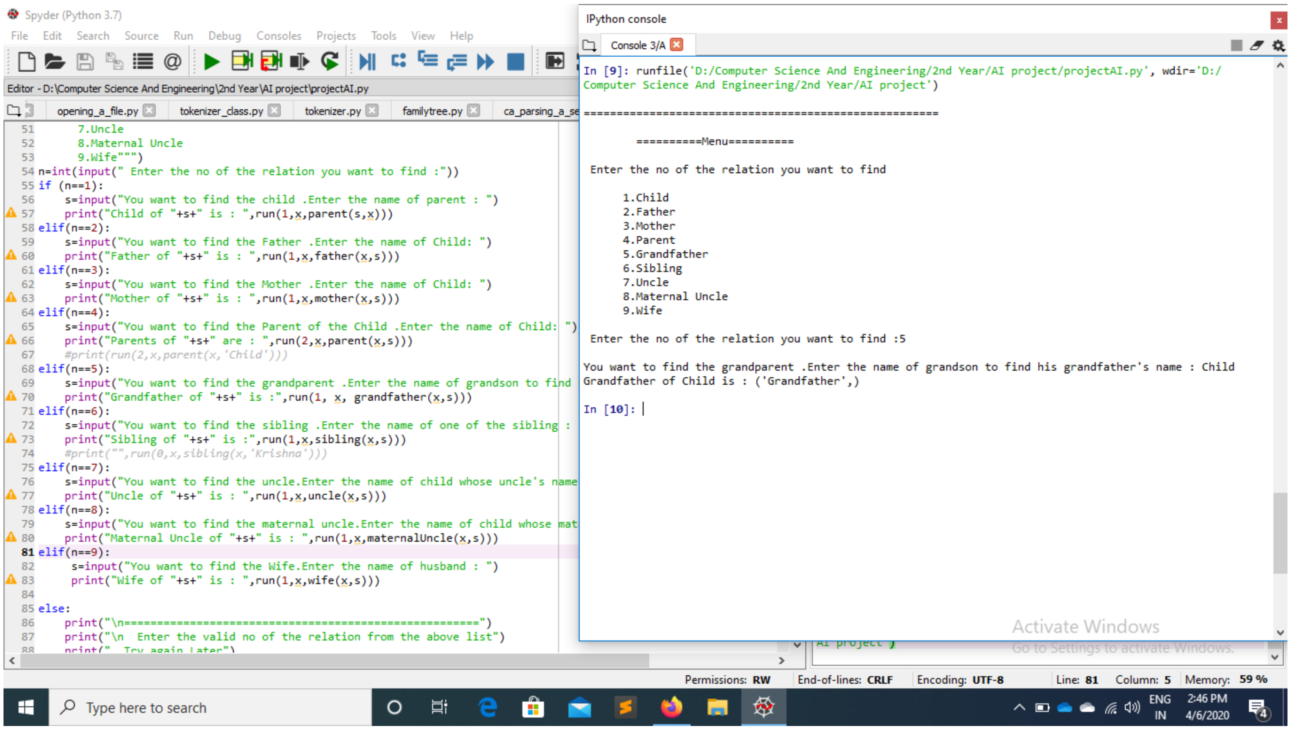

Input :4

As in the above output no.4 is choosen the blood relation of no.4 is displayed.

Output : Parent of child is: Father,Mother


Spyder (Python 3.7)
File Edit Search Source Run Debug Consoles Projects Tools View Help
Editor - D:\Computer Science And Engineering\2nd Year\AI project\projectAI.py
opening_a_file.py tokenizer_class.py tokenizer.py familytree.py ca_parsing_a_se
IPython console
Console 3/A
Activate Windows
Go to Settings to activate Windows.
Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 81 Column: 5 Memory: 59 %
Type here to search
ENG IN 2:46 PM 4/6/2020

```
       7.Uncle
       8.Maternal Uncle
       9.Wife""")
n=int(input(" Enter the no of the relation you want to find :"))
if (n==1):
    s=input("You want to find the child .Enter the name of parent : ")
    print("Child of "+s+" is : ",run(1,x,parent(s,x)))
elif(n==2):
    s=input("You want to find the Father .Enter the name of Child: ")
    print("Father of "+s+" is : ",run(1,x,father(x,s)))
elif(n==3):
    s=input("You want to find the Mother .Enter the name of Child: ")
    print("Mother of "+s+" is : ",run(1,x,mother(x,s)))
elif(n==4):
    s=input("You want to find the Parent of the Child .Enter the name of Child: ")
    print("Parents of "+s+" are : ",run(2,x,parent(x,s)))
    #print(run(2,x,parent(x,'Child')))
elif(n==5):
    s=input("You want to find the grandparent .Enter the name of grandson to find
    print("Grandfather of "+s+" is :",run(1, x, grandfather(x,s)))
elif(n==6):
    s=input("You want to find the sibling .Enter the name of one of the sibling :
    print("Sibling of "+s+" is :",run(1,x,sibling(x,s)))
    #print("",run(0,x,sibling(x,'Krishna')))
elif(n==7):
    s=input("You want to find the uncle.Enter the name of child whose uncle's name
    print("Uncle of "+s+" is : ",run(1,x,uncle(x,s)))
elif(n==8):
    s=input("You want to find the maternal uncle.Enter the name of child whose mat
    print("Maternal Uncle of "+s+" is : ",run(1,x,maternalUncle(x,s)))
elif(n==9):
     s=input("You want to find the Wife.Enter the name of husband : ")
     print("Wife of "+s+" is : ",run(1,x,wife(x,s)))

else:
    print("\n=======================================================")
    print("\n  Enter the valid no of the relation from the above list")
    print("  Try again Later")
```

```
In [9]: runfile('D:/Computer Science And Engineering/2nd Year/AI project/projectAI.py', wdir='D:/
Computer Science And Engineering/2nd Year/AI project')

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        ==========Menu==========

 Enter the no of the relation you want to find

      1.Child
      2.Father
      3.Mother
      4.Parent
      5.Grandfather
      6.Sibling
      7.Uncle
      8.Maternal Uncle
      9.Wife

 Enter the no of the relation you want to find :5

You want to find the grandparent .Enter the name of grandson to find his grandfather's name : Child
Grandfather of Child is : ('Grandfather',)

In [10]:
```
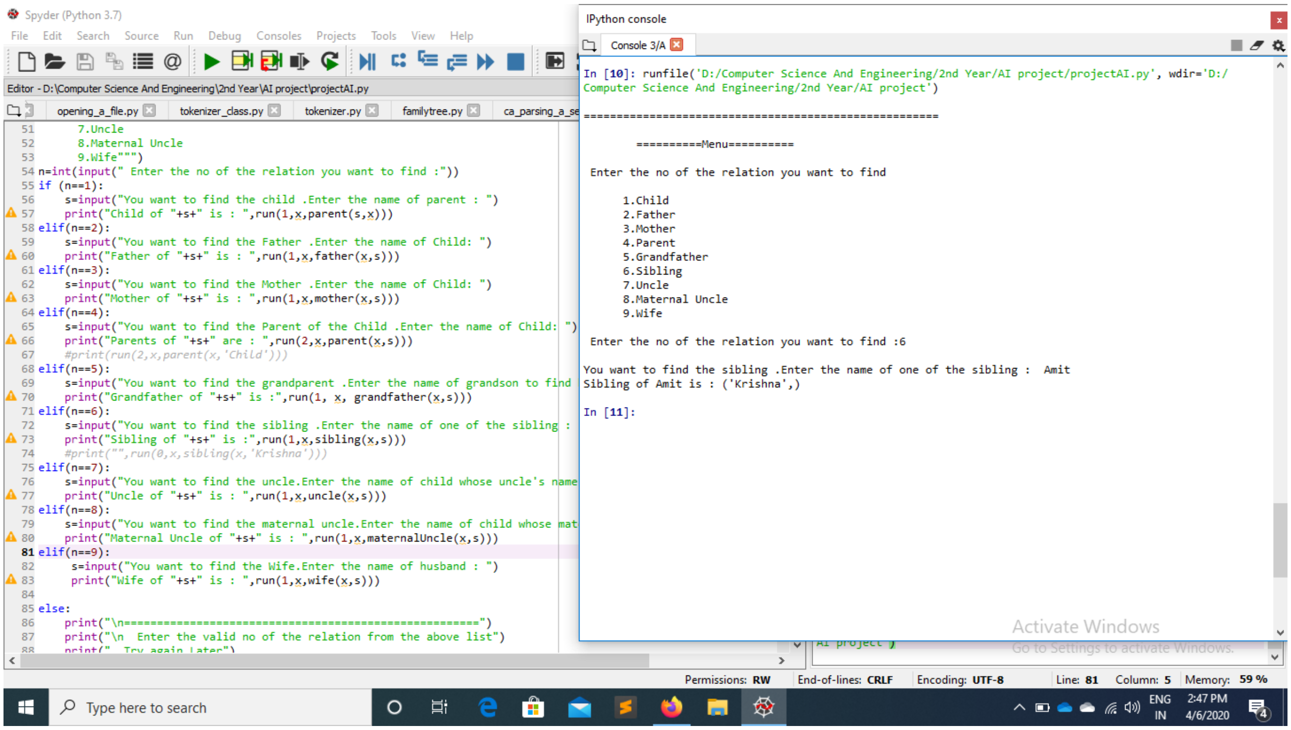

Input :5

As in the above output no:5 is choosen the blood relation of no 5 is displayed.

Output : Grandfather of child is:GrandFather



```
          7.Uncle
          8.Maternal Uncle
          9.Wife""")
n=int(input(" Enter the no of the relation you want to find :"))
if (n==1):
    s=input("You want to find the child .Enter the name of parent : ")
    print("Child of "+s+" is : ",run(1,x,parent(s,x)))
elif(n==2):
    s=input("You want to find the Father .Enter the name of Child: ")
    print("Father of "+s+" is : ",run(1,x,father(x,s)))
elif(n==3):
    s=input("You want to find the Mother .Enter the name of Child: ")
    print("Mother of "+s+" is : ",run(1,x,mother(x,s)))
elif(n==4):
    s=input("You want to find the Parent of the Child .Enter the name of Child: ")
    print("Parents of "+s+" are : ",run(2,x,parent(x,s)))
    #print(run(2,x,parent(x,'Child')))
elif(n==5):
    s=input("You want to find the grandparent .Enter the name of grandson to find
    print("Grandfather of "+s+" is :",run(1, x, grandfather(x,s)))
elif(n==6):
    s=input("You want to find the sibling .Enter the name of one of the sibling :
    print("Sibling of "+s+" is :",run(1,x,sibling(x,s)))
    #print("",run(0,x,sibling(x,'Krishna')))
elif(n==7):
    s=input("You want to find the uncle.Enter the name of child whose uncle's name
    print("Uncle of "+s+" is : ",run(1,x,uncle(x,s)))
elif(n==8):
    s=input("You want to find the maternal uncle.Enter the name of child whose mat
    print("Maternal Uncle of "+s+" is : ",run(1,x,maternalUncle(x,s)))
elif(n==9):
     s=input("You want to find the Wife.Enter the name of husband : ")
     print("Wife of "+s+" is : ",run(1,x,wife(x,s)))

else:
    print("\n=======================================================")
    print("\n  Enter the valid no of the relation from the above list")
    print("  Try again Later")
```

```
In [10]: runfile('D:/Computer Science And Engineering/2nd Year/AI project/projectAI.py', wdir='D:/
Computer Science And Engineering/2nd Year/AI project')

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        ==========Menu==========

 Enter the no of the relation you want to find

      1.Child
      2.Father
      3.Mother
      4.Parent
      5.Grandfather
      6.Sibling
      7.Uncle
      8.Maternal Uncle
      9.Wife

 Enter the no of the relation you want to find :6

You want to find the sibling .Enter the name of one of the sibling :  Amit
Sibling of Amit is : ('Krishna',)

In [11]:
```
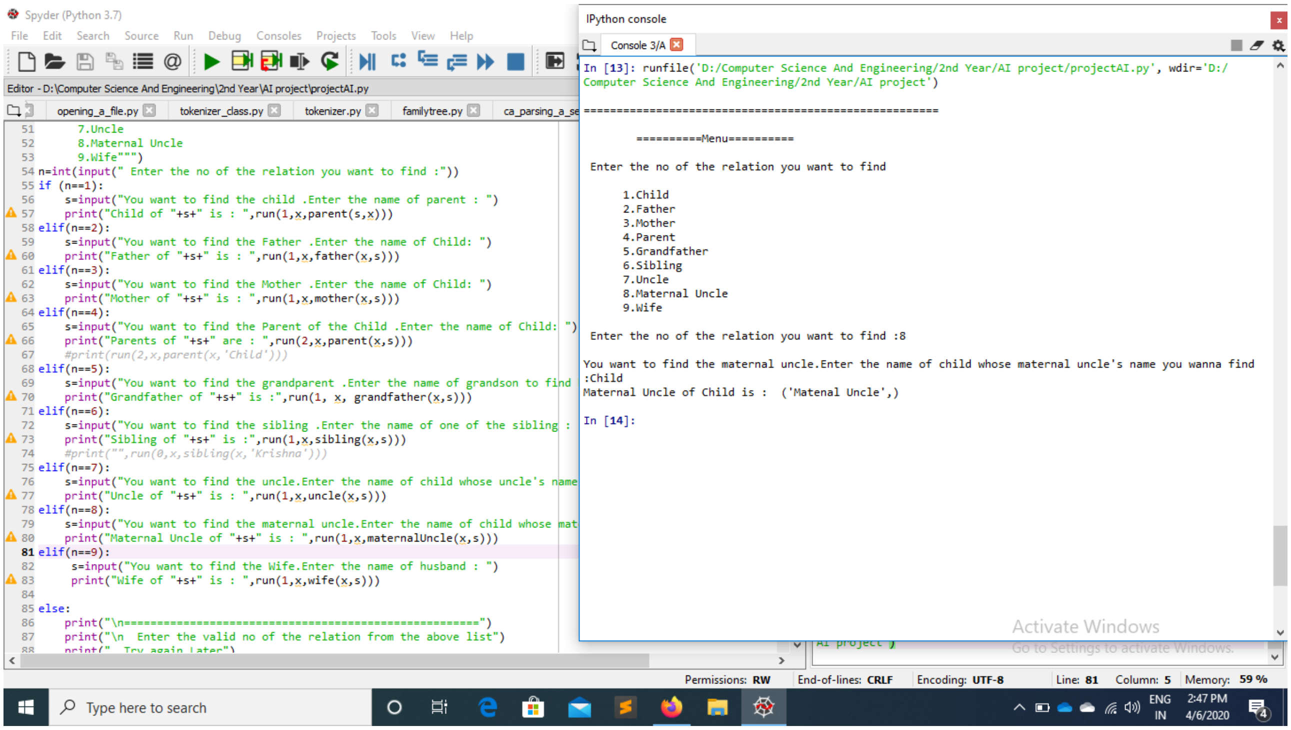

Input :6

As in the above output no.6 is choosen the blood relation of no.6 is displayed.

Output : Sibling of Amit is:Krishna



Editor - D:\Computer Science And Engineering\2nd Year\AI project\projectAI.py

```
      7.Uncle
      8.Maternal Uncle
      9.Wife""")
n=int(input(" Enter the no of the relation you want to find :"))
if (n==1):
    s=input("You want to find the child .Enter the name of parent : ")
    print("Child of "+s+" is : ",run(1,x,parent(s,x)))
elif(n==2):
    s=input("You want to find the Father .Enter the name of Child: ")
    print("Father of "+s+" is : ",run(1,x,father(x,s)))
elif(n==3):
    s=input("You want to find the Mother .Enter the name of Child: ")
    print("Mother of "+s+" is : ",run(1,x,mother(x,s)))
elif(n==4):
    s=input("You want to find the Parent of the Child .Enter the name of Child: ")
    print("Parents of "+s+" are : ",run(2,x,parent(x,s)))
    #print(run(2,x,parent(x,'Child')))
elif(n==5):
    s=input("You want to find the grandparent .Enter the name of grandson to find
    print("Grandfather of "+s+" is :",run(1, x, grandfather(x,s)))
elif(n==6):
    s=input("You want to find the sibling .Enter the name of one of the sibling :
    print("Sibling of "+s+" is :",run(1,x,sibling(x,s)))
    #print("",run(0,x,sibling(x,'Krishna')))
elif(n==7):
    s=input("You want to find the uncle.Enter the name of child whose uncle's name
    print("Uncle of "+s+" is : ",run(1,x,uncle(x,s)))
elif(n==8):
    s=input("You want to find the maternal uncle.Enter the name of child whose mat
    print("Maternal Uncle of "+s+" is : ",run(1,x,maternalUncle(x,s)))
elif(n==9):
     s=input("You want to find the Wife.Enter the name of husband : ")
     print("Wife of "+s+" is : ",run(1,x,wife(x,s)))

else:
    print("\n=========================================================")
    print("\n  Enter the valid no of the relation from the above list")
    print("  Try again later")
```

```
In [13]: runfile('D:/Computer Science And Engineering/2nd Year/AI project/projectAI.py', wdir='D:/
Computer Science And Engineering/2nd Year/AI project')

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        ==========Menu==========

 Enter the no of the relation you want to find

      1.Child
      2.Father
      3.Mother
      4.Parent
      5.Grandfather
      6.Sibling
      7.Uncle
      8.Maternal Uncle
      9.Wife

 Enter the no of the relation you want to find :8

You want to find the maternal uncle.Enter the name of child whose maternal uncle's name you wanna find
:Child
Maternal Uncle of Child is :  ('Matenal Uncle',)

In [14]:
```
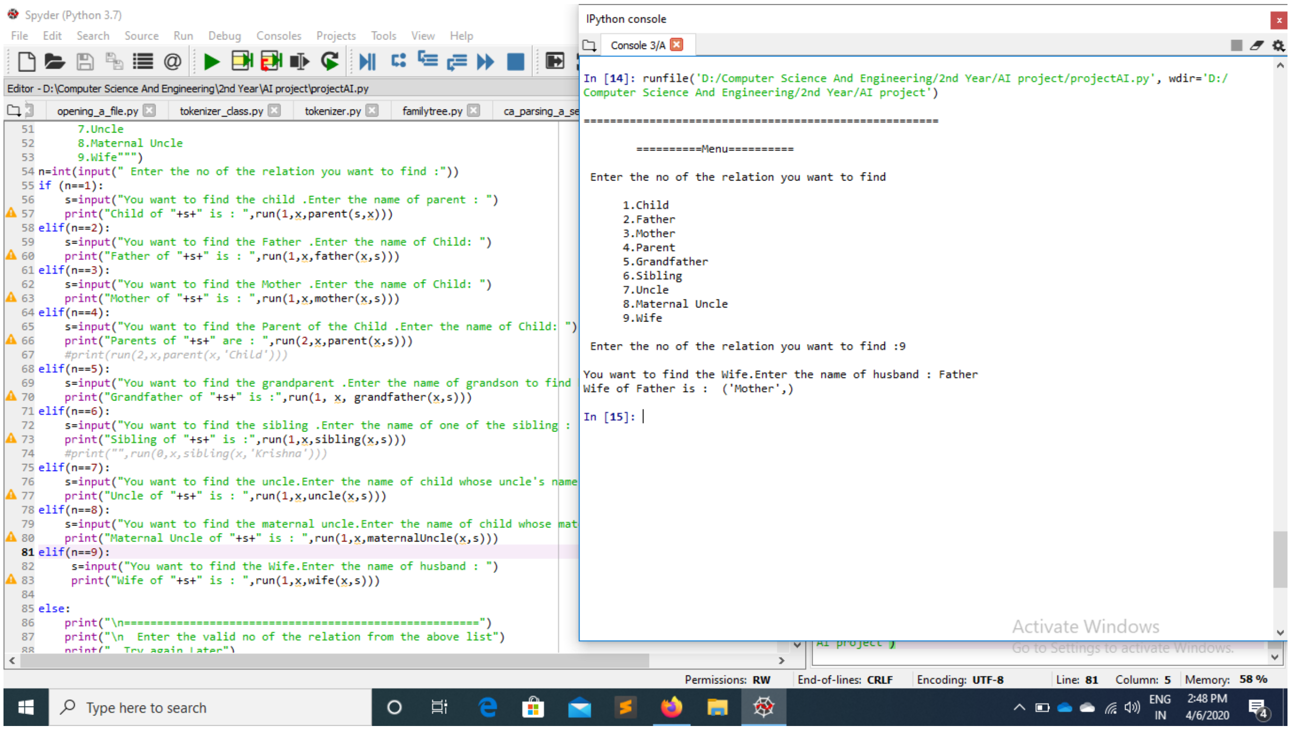

Input :8

As in the above output no.8 is choosen the blood relation of no.8 is displayed.

Output : Maternal Uncle of Child is: Maternal Uncle



Editor - D:\Computer Science And Engineering\2nd Year\AI project\projectAI.py

```
      7.Uncle
      8.Maternal Uncle
      9.Wife""")
n=int(input(" Enter the no of the relation you want to find :"))
if (n==1):
    s=input("You want to find the child .Enter the name of parent : ")
    print("Child of "+s+" is : ",run(1,x,parent(s,x)))
elif(n==2):
    s=input("You want to find the Father .Enter the name of Child: ")
    print("Father of "+s+" is : ",run(1,x,father(x,s)))
elif(n==3):
    s=input("You want to find the Mother .Enter the name of Child: ")
    print("Mother of "+s+" is : ",run(1,x,mother(x,s)))
elif(n==4):
    s=input("You want to find the Parent of the Child .Enter the name of Child: ")
    print("Parents of "+s+" are : ",run(2,x,parent(x,s)))
    #print(run(2,x,parent(x,'Child')))
elif(n==5):
    s=input("You want to find the grandparent .Enter the name of grandson to find
    print("Grandfather of "+s+" is :",run(1, x, grandfather(x,s)))
elif(n==6):
    s=input("You want to find the sibling .Enter the name of one of the sibling :
    print("Sibling of "+s+" is :",run(1,x,sibling(x,s)))
    #print("",run(0,x,sibling(x,'Krishna')))
elif(n==7):
    s=input("You want to find the uncle.Enter the name of child whose uncle's name
    print("Uncle of "+s+" is : ",run(1,x,uncle(x,s)))
elif(n==8):
    s=input("You want to find the maternal uncle.Enter the name of child whose mat
    print("Maternal Uncle of "+s+" is : ",run(1,x,maternalUncle(x,s)))
elif(n==9):
     s=input("You want to find the Wife.Enter the name of husband : ")
     print("Wife of "+s+" is : ",run(1,x,wife(x,s)))

else:
    print("\n=========================================================")
    print("\n  Enter the valid no of the relation from the above list")
    print("  Try again later")
```

```
In [14]: runfile('D:/Computer Science And Engineering/2nd Year/AI project/projectAI.py', wdir='D:/
Computer Science And Engineering/2nd Year/AI project')

=======================================================

        ==========Menu==========

 Enter the no of the relation you want to find

      1.Child
      2.Father
      3.Mother
      4.Parent
      5.Grandfather
      6.Sibling
      7.Uncle
      8.Maternal Uncle
      9.Wife

 Enter the no of the relation you want to find :9

You want to find the Wife.Enter the name of husband : Father
Wife of Father is :  ('Mother',)

In [15]: |
```

Input :9

As in the above output no:9 is choosen the blood relation of no: 9 is displayed.

Output : Wife of Father is : Mother

6.CONCLUSION:

Basically this program is all about describing the family blood relation in expectation to store all the close blood relations. The logic and libraries used in the program to define the relation helped us to get the correct output for the program. This program has made our work easier as it can run multiple times to show the relation.

7.REFERENCE:

1.http://matthewrocklin.com/blog/work/2013/01/14/LogPy-Introduction

2.https://en.wikipedia.org/wiki/Blood_Relations

8.WORK DONE BY GROUPMATES:

1.Saurav Rawat	**64**	**11811014**	**Programming and video explanation**
2.Kirti Pandey A	**65**	**11811034**	**Programming and Report**
3.Ankit kumar	**66**	**11811154**	**Report**
4.Disha Chaurasia	**29**	**11809629**	**Report and Algorithm part**

Github Link : https://github.com/sauravrawat305/aiproject_familytree