St. Francis Institute of Technology,

Mumbai-400 103

A.Y. 2023-24

Class: SE-ITA/ITB,

Semester: IV Subject Python Lab.

Experiment – 11: Python program to implement different file handling operations using pickle.

1. **Aim:** To implement a python program for the following:

a) Write a Python program to create, write, read, append and close a file using File manipulating methods.

b) Create a class Student to input data members roll number, name, age with a display method to print their details,using pickle module.

2. **Prerequisite:** Basic knowledge of Python.

3. **Objective:** Knowledge of file handling in python.

4. **Requirements:** Personal Computer (PC), Windows /Linux Operating System, IDLE 3.6 for Python3.

5. Pre-Experiment Exercise: Theory:

Files:

In Python, a file is categorized as either text or binary. Text files are structured as a sequence of lines, where each line includes a sequence of characters. This is what you know as code or syntax. Each line is terminated with a special character, called the EOL or **End of Line** character. A binary file is any type of file that is not a text file. Because of their nature, binary files can only be processed by an application that know or understand the file's structure. ● File Operations:

Open ():-In order to open a file for writing or use in Python, you must rely on the built- in ***open ()*** function.

Mode:-

r'- Read mode which is used when the file is only being read.

'w'-Write mode which is used to edit and write new information to the file (any existing files with the same name will be erased when this mode is activated) .

'a'-Appending mode, which is used to add new data to the end of the file; that is new information is automatically amended to the end .

'r+'-Special read and write mode, which is used to handle both actions when working with a file.

Write ():-writes any string to an open file.

Pickle:

The **pickle** module implements a fundamental, but powerful algorithm for serializing and de-serializing a Python object structure. "Pickling" is the process whereby a Python object hierarchy is converted into a byte stream,

and “unpickling” is the inverse operation, whereby a byte stream is converted back into an object hierarchy.

6. Laboratory Exercise

A. Procedure

- Open Idle for python
- Open editor in Idle from menu file-new
- Type python code with proper syntax
- Save file with .py extension
- Execute the code inside the saved file using shortcut key F5 or using menu: Run-Run module

Program code with comments:

Write and execute your program code to achieve the given aim and attach it **with your own comments with neat indentation**.

7. Post-Experiments Exercise

A. Extended Theory:

1. Explain the methods seek (), rename (), mkdir (), remove (), tell () with syntax and example of each.
2. Explain different File Exceptions used in Python along with example.
3. Differentiate between pickling and unpickling

B. Questions/Programs:

Write a Python program to read last two lines of a file.

C. Conclusion:

1. Write what was performed in the experiment/program.
2. What is the significance of experiment/program?

D.References

1. James Payne, ”Beginning Python: Using Python 2.6 and Python 3.1”, WroxPublication.
2. https://www.python.org/
3. www.pythonforbeginners.com
4. https://python.plainenglish.io/exception-and-file-handling-in-python-acf41e4aa530

In- Lab Exercise

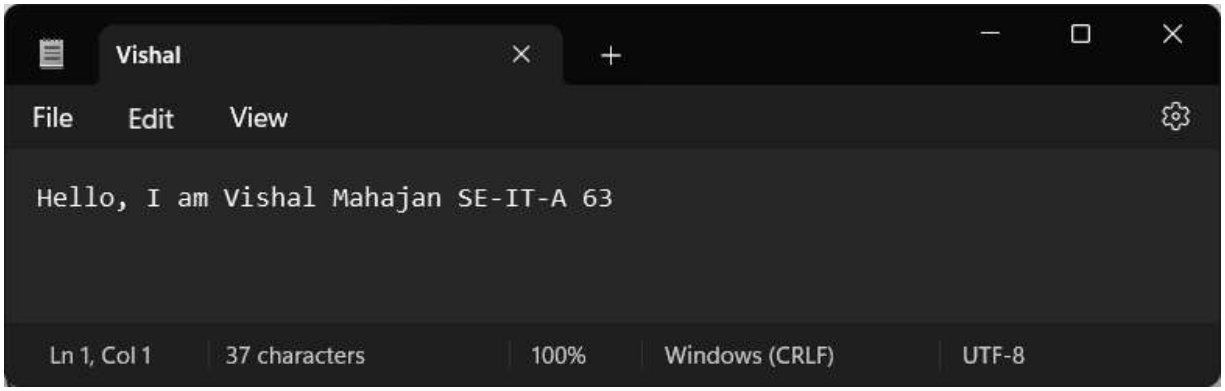
1.Write a Python program to create, write, read, append and close a file using File manipulating methods.

1. Create and Write a file:

Code:

```
file = open("Vishal.txt", "w")
file.write("Hello, I am Vishal Mahajan SE-IT-A 63")
file.close()
```

Output:



2. Read a File

Code:

```
file = open("Vishal.txt", "r")
print(file.read())
file.close()
```

Output:

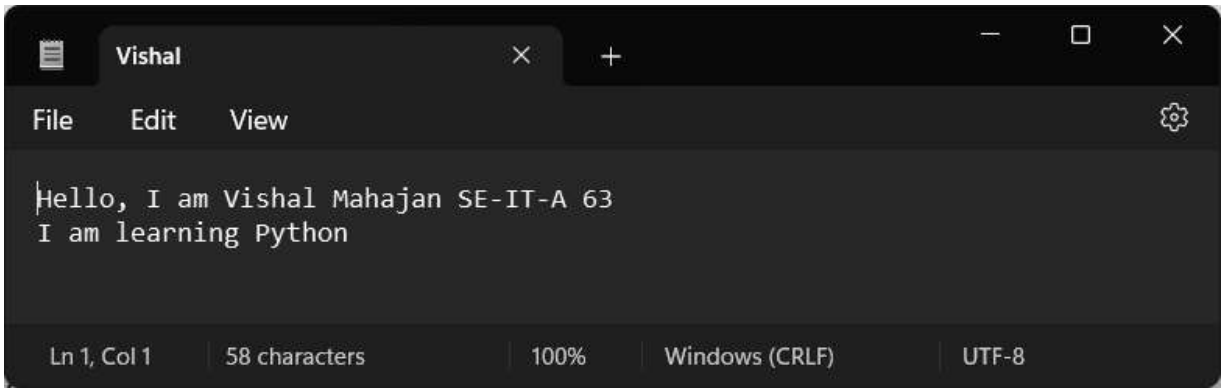
```
F:\College Stuff\Vishal Mahajan SE IT SEM 4\Python Lab\EXP11>python file.py
Hello, I am Vishal Mahajan SE-IT-A 63

F:\College Stuff\Vishal Mahajan SE IT SEM 4\Python Lab\EXP11>
```

3. Append

Code:

```
file = open("Vishal.txt", "a")
file.write("\nI am learning Python")
file.close()
```

Output:



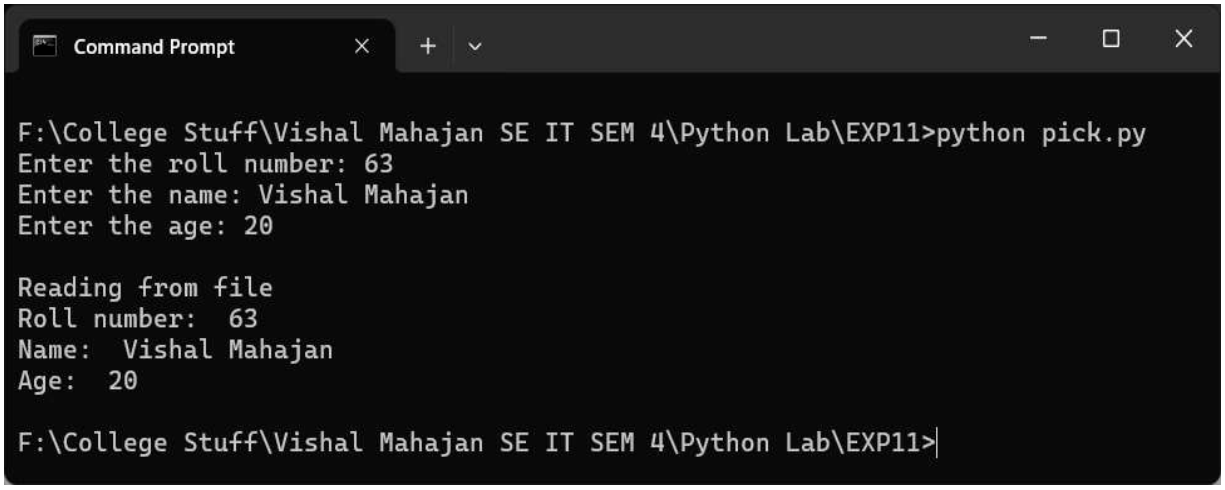
Q2.Create a class Student to input data members roll number, name, age with a display method to print their details,using pickle module.

Code:

```
import pickle

class Student:
    def __init__(self):
        self.roll = 0
        self.name = ""
        self.age = 0

    def getdata(self):
        self.roll = int(input("Enter the roll number: "))
        self.name = input("Enter the name: ")
        self.age = int(input("Enter the age: "))

    def display(self):
        print("Roll number: ", self.roll)
        print("Name: ", self.name)
        print("Age: ", self.age)


s = Student()

s.getdata()

file = open("Student.pkl", "wb")
pickle.dump(s, file)
file.close()
```

```
print("\nReading from file")
file = open("Student.pkl", "rb")
s = pickle.load(file)
s.display()
file.close()
```

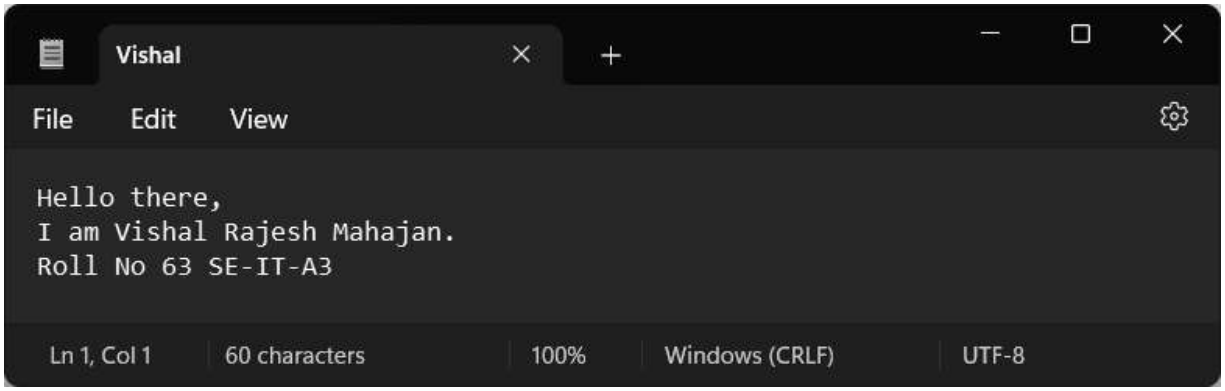
Output:



POST-LAB EXERCISE:

Write a Python program to read last two lines of a file.

File:



Code:

```
file = open("Vishal.txt", "r")
lines = file.readlines()
print(lines[-2:])
file.close()
```

Output: