## Binary Files:

1. Binary files are made up of non-human readable characters and symbols, which require specific programs to access their contents.
2. In this translation is not required because data is stored in byte form.
3. Faster than text files.
4. **pickle** module is used for working with binary files import pickle
5. The file extension will be **.dat**
6. There is no delimiter to end the file.

## Working in Binary files:

**Pickle module: The** pickle module is used in binary files for the load( ) and dump( ) methods which are used for reading and writing into binary files respectively.

**Pickling**: It is the process of converting a Python object into a byte stream. Pickling is done at the time of writing into a binary file.

**Unpickling**: It is the process of converting a byte stream into a Python object. Unpickling is done at the time of reading from a binary file.

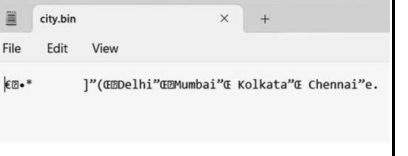
**dump( ):** It is used to write data into a binary file.

**Syntax:** identifier = pickle.dump(data , file_pointer)

**Example:** a= "My name is Anuj" **pickle.dump(a,f)** #here 'a' contains data and 'f' is a file pointer.

```
#Write a program to write city names in binary f

import pickle
f=open("city.bin","wb")
city=["Delhi","Mumbai","Kolkata","Chennai"]
pickle.dump(city,f)
f.close()
```



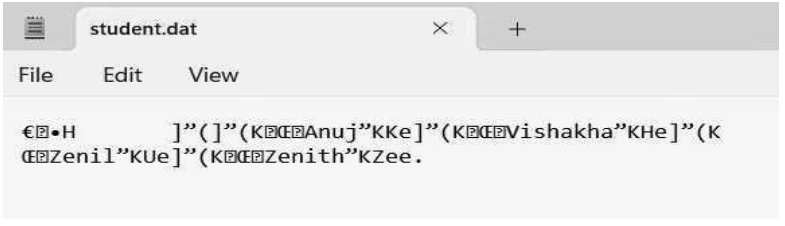

Program

```
#Write a program in python
#To write student details into a binary file
import pickle
f=open("student.dat","wb")
record=[]
while True:
    rno=int(input("Enter the Roll No : "))
    name=input("Enter the Name : ")
    marks=int(input("Enter the Marks : "))
    x=[rno,name,marks]
    record.append(x)
    ch=input("Press 'y' for input more details : ")
    if ch not in "yY":
        break
pickle.dump(record,f)
f.close()
```

Input

```
>>>
========== RESTART: C:/Users
Enter the Roll No : 1
Enter the Name : Anuj
Enter the Marks : 75
Press 'y' for input more details : y
Enter the Roll No : 2
Enter the Name : Vishakha
Enter the Marks : 72
Press 'y' for input more details : y
Enter the Roll No : 10
Enter the Name : Zenil
Enter the Marks : 85
Press 'y' for input more details : y
Enter the Roll No : 15
Enter the Name : Zenith
Enter the Marks : 90
Press 'y' for input more details : n
```

File Content




**load( ):** it is used to read data from binary file.

**Syntax**: identifier = pickle.load(file_pointer)

**Example**: data = pickle.load(f) #Here 'data' is an identifier and 'f' is a file pointer.

```
#Write a program to read data from city.bin
import pickle
f=open("city.bin","rb")
city=pickle.load(f)
print("City Names are : ",city)
f.close()
```

```
== RESTART: C:/Users/anujd/AppData/Local/Programs/Python/Pyth
City Names are :  ['Delhi', 'Mumbai', 'Kolkata', 'Chennai']
```

```
#Write a program in python to read
#student details from a binary file named "student.dat"

import pickle
f=open("student.dat","rb")
record=pickle.load(f) #record contains the whole content of file
for i in record:    #accessing records one by one
    print(i)
f.close()
>>>
    == RESTART: C:/Users/anujd/AppI
    [1, 'Anuj', 75]
    [2, 'Vishakha', 72]
    [10, 'Zenil', 85]
    [15, 'Zenith', 90]
```

Question: Write a menu based program in python which contain student details in binary file andshould have following facilities:

1. Writing student details.
2. Display all students' details
3. Search particular student details
4. Update any student details
5. Delete any student detail
6. Exit

```
import pickle
import os

def insert():
    f=open("student.dat","ab")
    roll_no=int(input("Enter the Roll Number : "))
    name=input("Enter the Name : ")
    marks=int(input("Enter the Marks : "))
    student={"Roll_No":roll_no,"Name":name,"Marks":marks}
    pickle.dump(student,f)
    f.close()
    print("student details inserted successfully\n")

def display():
    f=open("student.dat","rb")
    try:
        while True:
            student=pickle.load(f)
            print(student)
    except:
        f.close()

def search():
    f=open("student.dat","rb")
    r=int(input("Enter the Roll Number to be searched : "))
    counter=0
```

```
    try:
        while True:
            student = pickle.load(f)
            if student["Roll_No"] == r:
                print("Student Details:")
                print("Roll Number:", student["Roll_No"])
                print("Name:", student["Name"])
                print("Marks:", student["Marks"])
                counter=1
    except:
        pass
    finally:
        if counter==0:
            print("Student Not Found")
        f.close()

def update():
    f=open("student.dat","rb")
    r = int(input("Enter Roll Number to update: "))
    temp_file = open("temp.dat", "wb")

    try:
        while True:
            student = pickle.load(f)
            if student["Roll_No"] == r:
                print("Current Details:")
                print("Roll Number:", student["Roll_No"])
                print("Name:", student["Name"])
                print("Marks:", student["Marks"])
                name = input("Enter The New Name: ")
                marks = int(input("Enter The New Marks: "))
                student["Name"] = name
                student["Marks"] = marks
                pickle.dump(student, temp_file)
                print("Student details updated successfully.")
            else:
                pickle.dump(student, temp_file)
    except :
        pass
    finally:
        f.close()
        temp_file.close()
        os.remove("student.dat")
        os.rename("temp.dat", "student.dat")

def delete():
    f=open("student.dat","rb")
    r = int(input("Enter The Roll Number to be deleted: "))
    temp_file = open("temp.dat", "wb")

    try:
        while True:
```

```
            student = pickle.load(f)
            if student["Roll_No"] != r:
                pickle.dump(student, temp_file)
    except EOFError:
        pass
    finally:
        f.close()
        temp_file.close()
        os.remove("student.dat")
        os.rename("temp.dat", "student.dat")
        print("Student deleted successfully.")
ch='y'
while ch in "yY":
    print("\nMenu:")
    print("1. Insert Student Details")
    print("2. Display All Students Details")
    print("3. Search Student Details")
    print("4. Update Student Details")
    print("5. Delete Student Details")
    print("6. Exit\n")
    choice=int(input("Enter your choice : "))
    if choice==1:
        insert()
    elif choice==2:
        display()
    elif choice==3:
        search()
    elif choice==4:
        update()
    elif choice==5:
        delete()
    elif choice==6:
        print("\n\t------ THE END --------")
        break
    else:
        print("\n\t------ Invalid Choice ------")
    ch=input("\nPress 'y' if you want to continue again : ")
```