

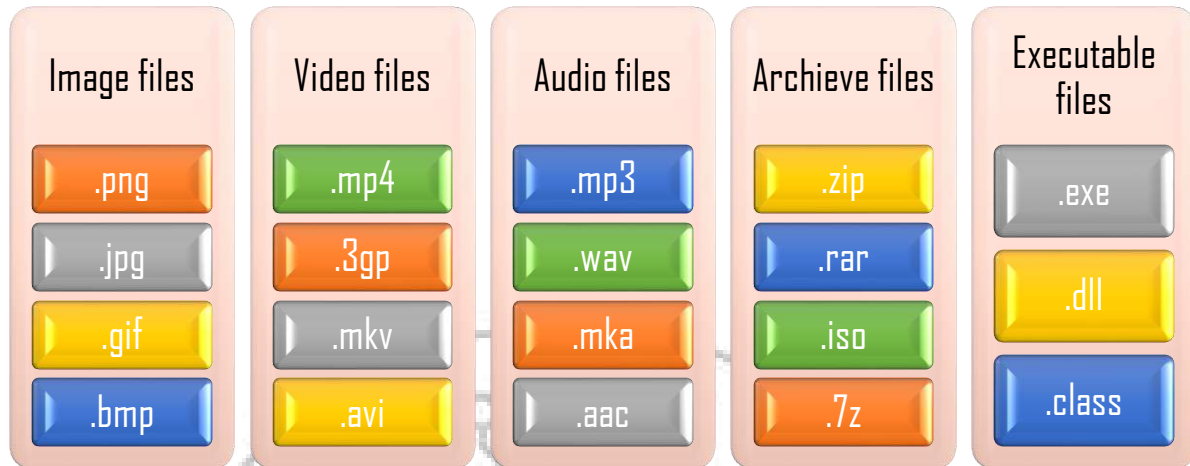
File Handling : Binary Files

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INTRODUCTION

- Most of the files that we see in our computer system are called Binary files.
- Example:



- We can open some binary files in the normal text editor but we **can't read** the content present inside the file.
- Because of binary format which is understandable by computer or a machine.
- There is **no requirement of translator**.
- Processing of these files are **easy and fast**.
- In Python, **pickling** process is used to read, write, append and update binary files.

PICKLING IN PYTHON

- Pickle is responsible for serializing and de-serializing of data.
- **Serializing** means converting a python object (like List, Dictionary etc.) into byte stream and **de-serializing** means converting the stream back to python object.
- The advantage is that we can use store data in file for later use, send it over different protocols, save the data in databases.

PICKLE MODULE

- **pickle.dump()**
 - Used to write the object in a file
 - Syntax: **pickle.dump(<structure>,file object)**
 - Here, structure can be any sequence such as list, dictionary of Python.
 - And file object is the file handle of the file, in which to write.
- **pickle.load()**
 - Used to read the data from a file.
 - Syntax: **Structure=pickle.load(file object)**
 - Here, structure can be any sequence such as list, dictionary of Python.
 - And file object is the file handle of the file, from which to read.

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OPERATIONS ON BINARY FILE



###SIMPLE WRITE AND READ IN BINARY FORMAT

```
import pickle
def write():
    f=open("Binaryfile.dat",'wb')
    list=[1,2,3,4]
    pickle.dump(list,f)
    f.close()
def read():
    f=open("Binaryfile.dat",'rb')
    lst=pickle.load(f)
    print(lst)
    f.close()
write()
read()
```

###MULTIPLE RECORDS AT A SAME TIME BUT IN A SINGLE LIST APPENDING DATA INTO THE FILE

```
import pickle
def write():
    f=open("Binaryfile.dat",'wb')
    Rec=[]
    while True:
        roll=int(input("ENTER ROLL NO.: "))
        name=input("ENTER NAME OF STUDENT: ")
        marks=int(input("ENTER THE TOTAL MARKS OBTAINED: "))
        grade=input("ENTER THE GRADE: ")
        R=[roll,name,marks,grade]
        Rec.append(R)
        ch=input("DO YOU WANT INSERT MORE ENTRIES (y/n): ")
        if ch=='n' or ch=='N':
            break
    pickle.dump(Rec,f)
    f.close()
def read():
    f=open("Binaryfile.dat",'rb')
    lst=pickle.load(f)
    print(lst)
```

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```
f.close()
write()
read()
```

OUTPUT-

```
ENTER ROLL NO.: 1
ENTER NAME OF STUDENT: Amit kumar singh
ENTER THE TOTAL MARKS OBTAINED: 456
ENTER THE GRADE: A
DO YOU WANT INSERT MORE ENTRIES (y/n): y
ENTER ROLL NO.: 2
ENTER NAME OF STUDENT: Rohan verma
ENTER THE TOTAL MARKS OBTAINED: 476
ENTER THE GRADE: A
DO YOU WANT INSERT MORE ENTRIES (y/n): n
[[1, 'Amit kumar singh', 456, 'A'], [2, 'Rohan verma', 476, 'A']]
```

###MULTIPLE INPUT BUT IN DEIFFERENT LIST###

```
import pickle
def write():
    f=open("Binaryfile.dat",'wb')
    while True:
        roll=int(input("ENTER ROLL NO.: "))
        name=input("ENTER NAME OF STUDENT: ")
        marks=int(input("ENTER THE TOTAL MARKS OBTAINED: "))
        grade=input("ENTER THE GRADE: ")
        Rec=[roll,name,marks,grade]
        pickle.dump(Rec,f)
        ch=input("DO YOU WANT INSERT MORE ENTRIES (y/n): ")
        if ch=='n' or ch=='N':
            break
    f.close()
def read():
    f=open("Binaryfile.dat",'rb')
    try:
        while True:
            lst=pickle.load(f)
            print(lst)
    except EOFError:
        f.close()
write()
read()
```

OUTPUT-

```
ENTER ROLL NO.: 1
ENTER NAME OF STUDENT: Amit
ENTER THE TOTAL MARKS OBTAINED: 456
ENTER THE GRADE: A
DO YOU WANT INSERT MORE ENTRIES (y/n): y
```

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```
ENTER ROLL NO.: 2
ENTER NAME OF STUDENT: Rohit
ENTER THE TOTAL MARKS OBTAINED: 467
ENTER THE GRADE: A
DO YOU WANT INSERT MORE ENTRIES (y/n): n
[1, 'Amit', 456, 'A']
[2, 'Rohit', 467, 'A']
```

SEARCHING DATA INTO A BINARY FILE

```
import pickle
def write():
    f=open("Binaryfile.dat",'wb')
    Rec=[]
    while True:
        roll=int(input("ENTER ROLL NO.: "))
        name=input("ENTER NAME OF STUDENT: ")
        marks=int(input("ENTER THE TOTAL MARKS OBTAINED: "))
        grade=input("ENTER THE GRADE: ")
        R=[roll,name,marks,grade]
        Rec.append(R)
        ch=input("DO YOU WANT INSERT MORE ENTRIES (y/n): ")
        if ch=='n' or ch=='N':
            break
    pickle.dump(Rec,f)
    f.close()
def read():
    f=open("Binaryfile.dat",'rb')
    s=pickle.load(f)
    for i in s:
        r=i[0]
        n=i[1]
        m=i[2]
        g=i[3]
        print(r,n,m,g)
    f.close()
def search():
    f=open("Binaryfile.dat",'rb')
    s=pickle.load(f)
    found=0
    r_no=int(input("Enter roll number to be searched: "))
    for i in s:
        if i[0]==r_no:
            print("RECORD FOUND")
            print(i[0],i[1],i[2],i[3])
            found=1
    if found==0:
        print("RECORD NOT FOUND")
write()
read()
```

File Handling : Binary Files

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search()

OUTPUT-

```
ENTER ROLL NO.: 1
ENTER NAME OF STUDENT: Amit
ENTER THE TOTAL MARKS OBTAINED: 456
ENTER THE GRADE: A
DO YOU WANT INSERT MORE ENTRIES (y/n): y
ENTER ROLL NO.: 2
ENTER NAME OF STUDENT: Sunil
ENTER THE TOTAL MARKS OBTAINED: 489
ENTER THE GRADE: A
DO YOU WANT INSERT MORE ENTRIES (y/n): y
ENTER ROLL NO.: 3
ENTER NAME OF STUDENT: Arjun
ENTER THE TOTAL MARKS OBTAINED: 345
ENTER THE GRADE: B
DO YOU WANT INSERT MORE ENTRIES (y/n): y
ENTER ROLL NO.: 4
ENTER NAME OF STUDENT: Ravi
ENTER THE TOTAL MARKS OBTAINED: 234
ENTER THE GRADE: C
DO YOU WANT INSERT MORE ENTRIES (y/n): y
ENTER ROLL NO.: 5
ENTER NAME OF STUDENT: Rahul
ENTER THE TOTAL MARKS OBTAINED: 457
ENTER THE GRADE: A
DO YOU WANT INSERT MORE ENTRIES (y/n): n
1 Amit 456 A
2 Sunil 489 A
3 Arjun 345 B
4 Ravi 234 C
5 Rahul 457 A
Enter roll number to be searched: 3
RECORD NOT FOUND
RECORD NOT FOUND
RECORD FOUND
3 Arjun 345 B
```

TO UPDATE AN EXISTING VALUE###

```
import pickle
def write():
    f=open("Binaryfile.dat",'wb')
    Rec=[]
    while True:
        roll=int(input("ENTER ROLL NO.: "))
        name=input("ENTER NAME OF STUDENT: ")
        marks=int(input("ENTER THE TOTAL MARKS OBTAINED: "))
        grade=input("ENTER THE GRADE: ")
```

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```
R=[roll,name,marks,grade]
Rec.append(R)
ch=input("DO YOU WANT INSERT MORE ENTRIES (y/n): ")
if ch=='n' or ch=='N':
    break
pickle.dump(Rec,f)
f.close()
def read():
f=open("Binaryfile.dat",'rb')
s=pickle.load(f)
for i in s:
    r=i[0]
    n=i[1]
    m=i[2]
    g=i[3]
    print(r,n,m,g)
f.close()
def search():
f=open("Binaryfile.dat",'rb')
s=pickle.load(f)
found=0
r_no=int(input("Enter roll number to be searched: "))
for i in s:
    if i[0]==r_no:
        print("RECORD FOUND")
        print(i[0],i[1],i[2],i[3])
        found=1
    if found==0:
        print("RECORD NOT FOUND")
def update():
f=open("Binaryfile.dat",'rb+')
s=pickle.load(f)
found=0
rno=int(input("ENTER ROLL NO. WHOSE VALUE YOU WANT TO UPDATE: "))
for i in s:
    if rno==i[0]:
        print("CURRENT VALUE: ", i[1])
        i[1]=input("ENTER NEW NAME:")
        found=1
        break
    if found==0:
        print("RECORD NOT FOUND")
else:
    f.seek(0)
    pickle.dump(s,f)
f.close()
read()
update()
read()
```

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OUTPUT-

1 Amit 456 A

2 Sunil 489 A

3 Arjun 345 B

4 Ravi 234 C

5 Rahul 457 A

ENTER ROLL NO. WHOSE VALUE YOU WANT TO UPDATE: 2

CURRENT VALUE: Sunil

ENTER NEW NAME:Ronit

1 Amit 456 A

2 Ronit 489 A

3 Arjun 345 B

4 Ravi 234 C

5 Rahul 457 A

```
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@@@@@@@@@@@@@@@@
```

