

Storing data permanently in computer

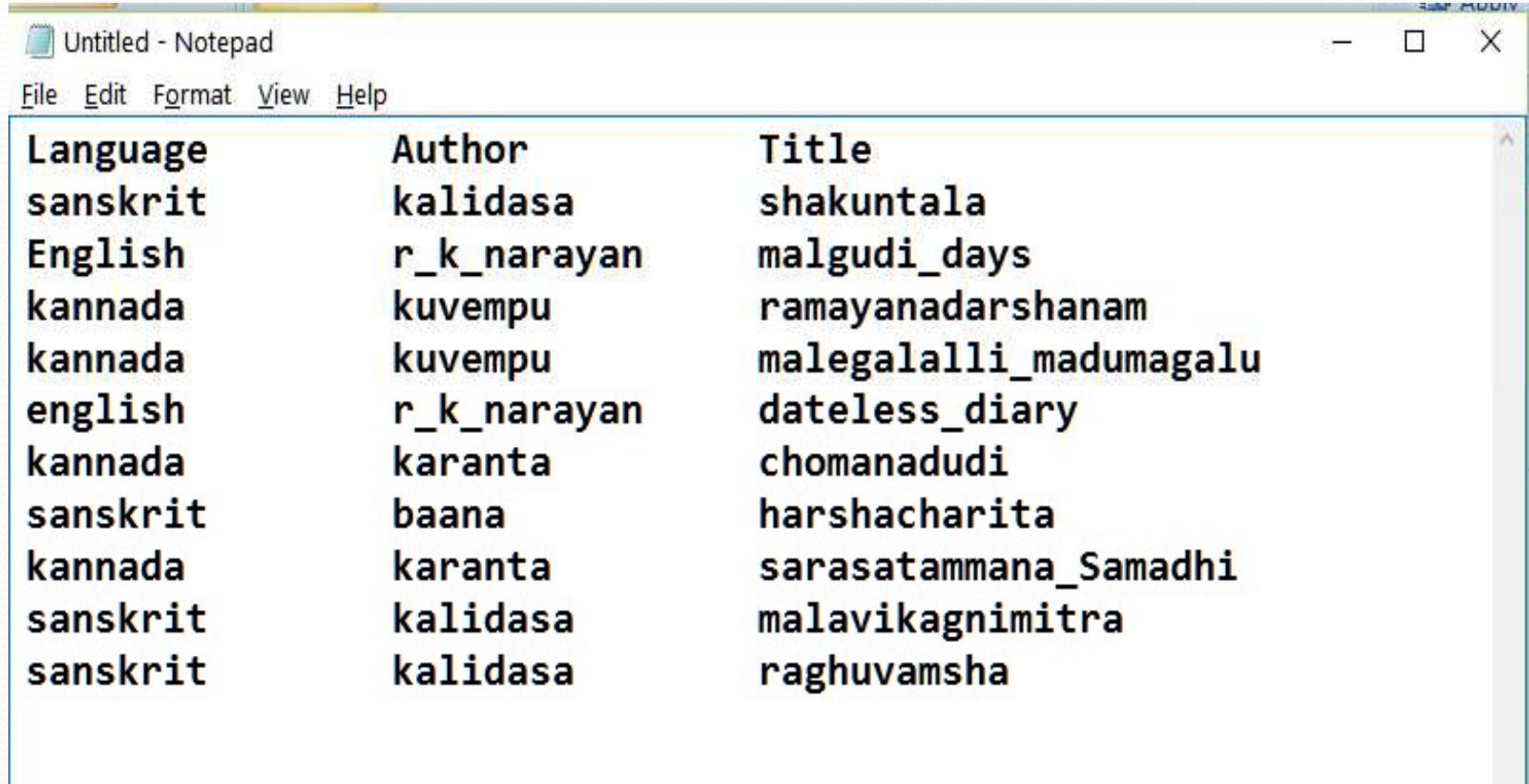
1) Databases : ORACLE, SQL SERVER ,MY SQL



2) Files :Text file, PDF file, Excel file, Word file



Why files and file operations ?



The image shows a screenshot of a Notepad window titled "Untitled - Notepad". The window contains a table with three columns: Language, Author, and Title. The table lists various literary works in Sanskrit and Kannada, along with their authors and titles in English.

Language	Author	Title
sanskrit	kalidasa	shakuntala
English	r_k_narayan	malgudi_days
kannada	kuvempu	ramayanadarshanam
kannada	kuvempu	malegalalli_madumagalu
english	r_k_narayan	dateless_diary
kannada	karanta	chomanadudi
sanskrit	baana	harshacharita
kannada	karanta	sarasatammaana_Samadhi
sanskrit	kalidasa	malavikagnimitra
sanskrit	kalidasa	raghuvamsha

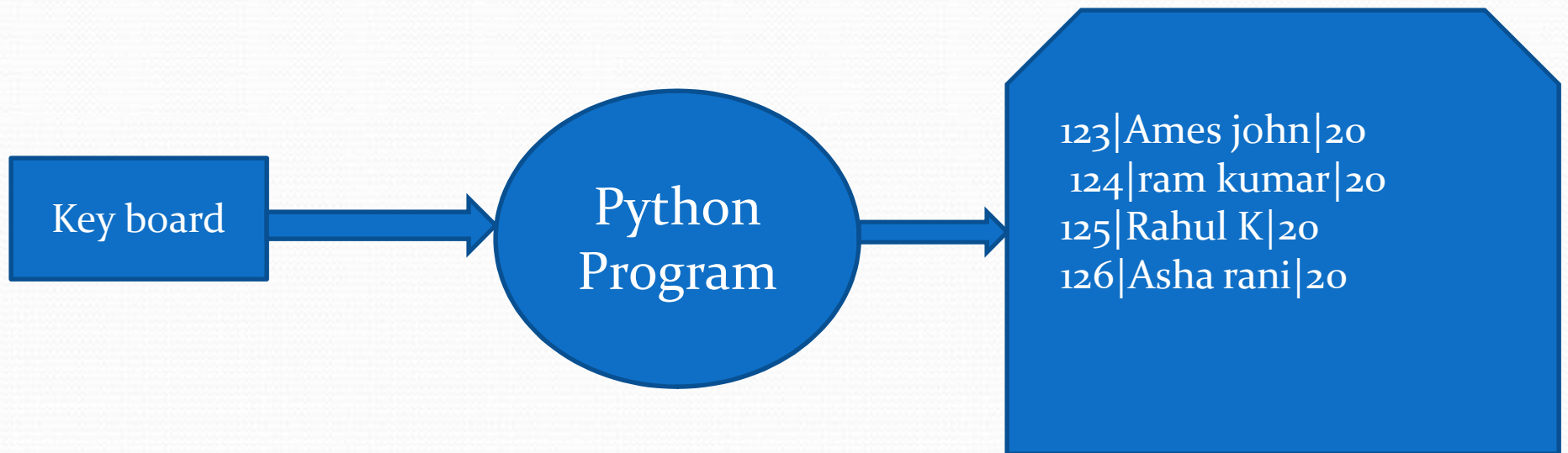


Steps in file handling or file operations.

- Opening an existing file
- Reading from a file
- Writing to a file
- Moving to a specific location in a file
- Closing a file

Keyboard to file or file to file

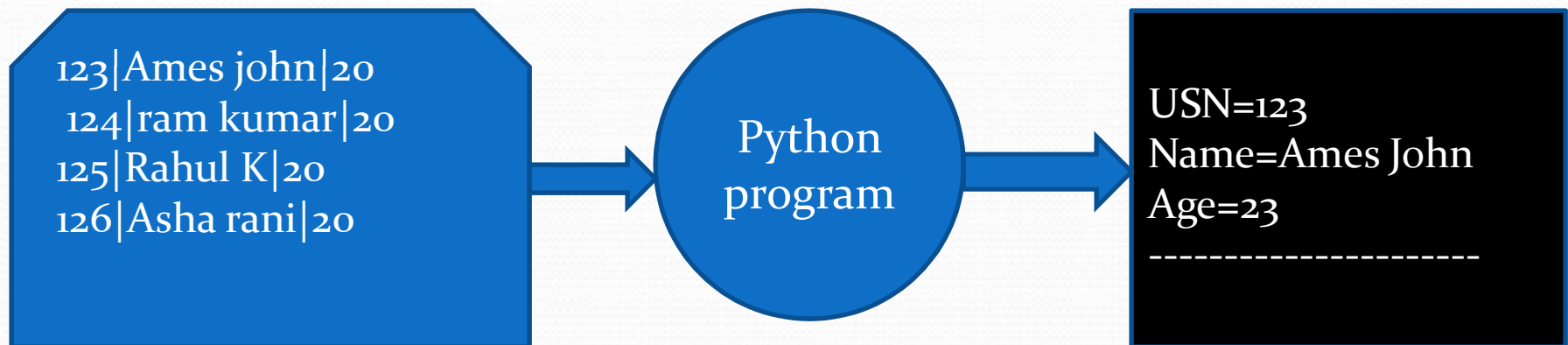
Write operation: writing to a file



Write operation

FROM FILE To Monitor

Read operation: Reading from a file



Read operation

FROM FILE To Monitor

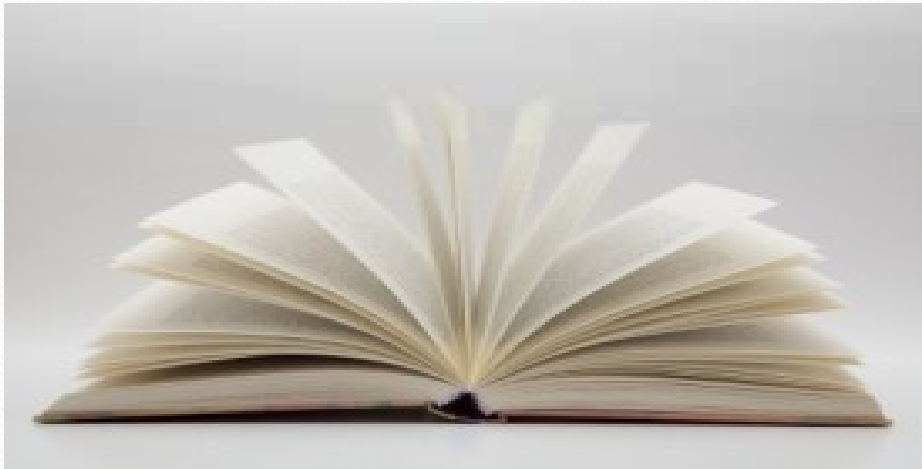


Built in functions for file handling

Functions	Use/purpose
<code>open()</code>	Opens a file
<code>file.close()</code>	Closes a file
<code>file.read()</code>	Reads a line from a file
<code>file.readlines()</code>	Read lines from a file
<code>file.write(data)</code>	Write a line of data to a file
<code>file.writelines(data)</code>	Write lines of data to a file

Opening a file

```
f = open("file name", "mode");
```



"r"
"w"
"a"

File modes

Read r

```
f=open("stud.txt","r");
```

Write w

```
f=open("stud.txt","w");
```

Append a

```
f=open("stud.txt","a");
```


File modes

Read mode(r)

- Default value.
- Opens a file for reading,
- Returns error if the file does not exist(open fails due to)
File does not exists, No read permission, File/Data corrupted

Write mode(w)

If file does not exists, then it creates new file
If it exists, then it overwrites.

Append mode(a)

Opens a file for appending
Creates the file if it does not exist

For both read and write

r+ open fails if file does not exists, pointer placed at the beginning of the file
w+ same as w but also allows you to read



Reading from a file

#Read a char from the file

`File.read(1)`

#Returns one line at a time

`File.readline()`

#Returns a list of lines

`File.readlines()`

#Reads entire file data at once and returns as string

`File.read()`

Reading data from a File line by line

```
#pgm to read line by line
file=open("strings.py","r");
for line in file:
    print (line)
file.close()
```

```
#reading lines
file=open("strings.py","r");
data=file.readlines() //reads into a list
for k in data:
    print(k)
```




Create a list of phone numbers

SANATH 7022663973 SANATH@gmail.com

ASMIKA 9108819222 ASMIKA@gmail.com

CHANDANA 9739100483 CHANDANA@gmail.com

RAJESH 123456789 RAJESH@gmail.com

SNEHA 9494451039 SNEHA@gmail.com

NAVEEN 9973265614 NAVEEN@gmail.com

ASWIN 9739111370 ASWIN@gmail.com

SOWMYA 7338322956 SOWMYA@gmail.com

LEKHA 8296426667 LEKHA@gmail.com



Create a list of phone numbers

```
file=open('studs.txt','r')
data=file.read()
res=[]
lines=data.split('\n')
for line in lines:
    (name,phno)=line.split()
    res.append(phno)
for phno in res:
    print(phno)
```



CBT Result analysis

PES2201800010	ANIKET	28.50	22.00	22.00	22.00	22.00
PES2201800053	AYUSHI	27.50	29.50	32.00	27.00	29.00
PES2201800061	SAMUDRALA	23.50	23.00	26.00	26.00	33.50
PES2201800062	PRAJWAL	27.50	22.00	24.00	22.00	29.50
PES2201800068	ANIRUDH	29.00	15.50	26.00	23.00	29.00

Find the subject avg,

Find the highest and lowest in each subject

Find the number of failures

Reading and writing files

#To read one line at a time

```
file = open("hello.txt", "r")  
line= file.readline()  
print(line)
```

#To read a list of lines:

```
file = open("hello.txt.", "r")  
data=file.readlines()  
print(data)
```

#To read entire file

```
file = open("hello.txt", "r")  
data=file.read()  
print(data)
```

To write to a file, use:

```
file = open("hello.txt","w")  
file.write("Hello World")  
file.close()
```

To append to file, use:

```
file = open("Hello.txt", "a")  
File.write("Hello World again")  
file.close
```



Writing data to a file

```
f = open("stud.txt","w");
```

```
write (data) #type of data is string
```

```
writelines(data) # type of data is list
```

```
f.close()
```


File copy program :

```
friendfile=open("friends.txt","r");
```

```
myfile=open("myfile.txt","w");
```

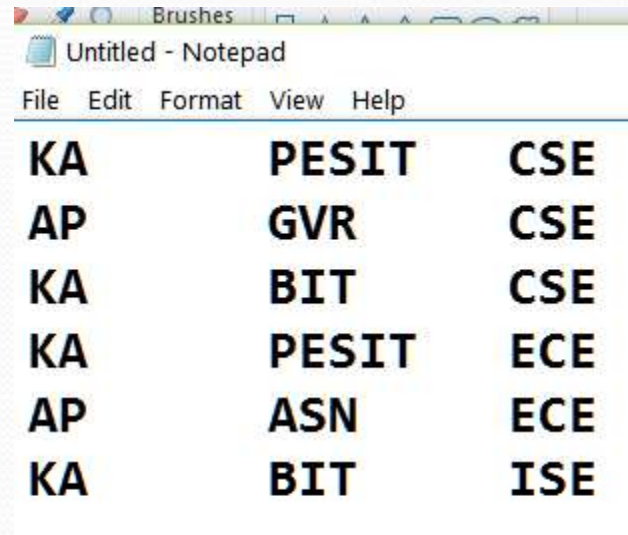
```
data=friendfile.read();
```

```
myfile.write(data);
```

```
print("successfully copied");
```

```
friendfile.close()
```

```
myfile.close();
```





split() using file handling

- # Python code to illustrate split() function
- with open("file.text", "r") as file:
- data = file.readlines()
- for line in data:
- word = line.split()
- print word



Python Program to Count the Number of Lines in a Text File

```
fname = input("Enter file name: ")
```

```
num_lines = 0
```

```
file=open(fname,'r')
```

```
for line in file:
```

```
    num_lines += 1
```

```
print("Number of lines:")
```

```
print(num_lines)
```

```
file=open('test.py','r')
```

```
data=file.readlines()
```

```
print(len(data))
```

Problem Solution

1. Take the file name from the user.
2. Read each line from the file and increment the count variable
3. Print the line count.
4. Exit.

Python Program to Count the Occurrences of a Word in a Text File

```
fname = input("Enter file name: ")
word=input("Enter word to be searched:")
k = 0
file=open(fname, 'r')
for line in file:
    words = line.split()
    for i in words:
        if(i==word):
            k=k+1
print("Occurrences of the word:")
print(k)
```

Problem Solution

1. Take the file name and the word to be counted from the user.
2. Read each line from the file and split the line to form a list of words.
3. Check if the word provided by the user and any of the words in the list are equal and if they are, increment the word count.
4. Exit.



Finding frequency of all words in a file

Betsy bottom bought some butter,

but the butter was bitter!

betsy bottom bought some better butter ,

to make the bitter butter better.



Finding frequency of all words

```
data = open('data.txt', 'r').read()
```

```
data = data.replace('.', ' ').replace('!', ' ').replace('?', ' ').replace(';', ' ').lower()
```

```
words = data.split()
```

```
word_count = [(x, words.count(x)) for x in words]
```

```
print(set(word_count))
```

```
#source="quora"
```

Finding frequency of all words

```
data = ""betsy bottom bought some butter but the butter was bitter betsy  
bottom bought some better butter to make the bitter butter better""
```

```
words=data.split()  
d = {}  
for word in words:  
    if word in d:  
        d[word] += 1  
    else:  
        d[word] =1  
print(d)
```

```
d.update({w:1})
```

```
import collections  
words=data.split()  
ctr=collections.Counter(words)  
print(ctr)
```



Finding frequency of all words

```
file = open('data.txt', 'r')
data=file.read()
data = data.replace('.', ' ').replace('!', ' ').replace('?', ' ').replace(';', ' ').lower()
words=data.split()
d = {}
for word in words:
    if word in d:
        d[word] += 1
    else:
        d[word] =1
print(d)
```

```
import collections
words=data.split()
ctr=collections.Counter(words)
print(ctr)
```




Finding frequency of all words

```
data = open('test.py', 'r').read()
#words = words.replace('.', ' ').replace('!', ' ').replace('?', ' ').replace(';', ' ').lower()
spchar="?,$%#@"
for i in spchar:
    data=data.replace(i," ")
words = data.split()
print(words)

words = map(lambda w:w.lower(),words)
data=list(words)

word_count = [(x,data.count(x)) for x in data]

print(set(word_count))

#source="quora"
```