QB365 Question Bank Software Study Materials

Python and CSV Files Important 2, 3 & 5 Marks Questions With Answers (Book Back and Creative)

12th Standard

Computer Science

Total Marks : 75

2 Marks

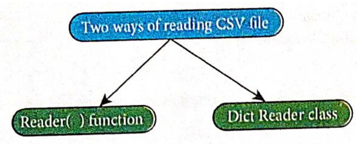
10 x 2 = 20

1) What is CSV File?

Answer : A CSV file is a human readable text file where each line has a number of fields, separated by commas or some other delimiter.

2) Mention the two ways to read a CSV file using Python.

Answer :



3) Mention the default modes of the File.

Answer : The default is reading in text mode. In this mode, while reading from the file the data would be in the format of strings.

4) What is use of next() function?

Answer : The row heading is get sorted, to avoid the first row should be skipped. This is can be done by using the command "next( )".

5) How will you sort more than one column from a csv file?Give an example statement.

Answer : To sort by more than one column you can use itemgetter with multiple indices:
operator.itemgetter
Example:
sortedlist = sorted (data, key = operator. itemgetter(1))

6) Why python has a garbage collector?

Answer : Python has a garbage collector to clean up unreferenced objects but, the user must not rely on it to close the file.

7) What is list?

Answer : A list is a data structure in Python that is a mutable, or changeable, ordered sequence of elements.

8) How will you read CSV file into a dictionary?

Answer : (i) To read a CSV file into a dictionary can be done by using DictReader class of csv module which works similar to the reader ( )class but creates an object which maps data to a dictionary.
(ii) The keys are given by the fieldnames as parameter.

9) How Diet Reader works or What is the use of dictionary key?

Answer : (i) DictReader works by reading the first line of the CSV and using each comma separated value in this line as a dictionary key.
(ii) The columns in each subsequent row then behave like dictionary values and can be accessed with the appropriate key.

10) Write is purpose of using skipinitialspace parameter.

Answer : The dialect parameter skipinitialspace when it is True, whitespace immediately following the delimiter is ignored. The default is False.

3 Marks

10 x 3 = 30

11)Write a note on open() function of python. What is the difference between the two methods?

Answer : (i) Python has a built-in function open() to open a file. This function returns a file object also called a handle, as it is used to read or modify the file accordingly.

For Example:

```
> > > f = open ("sample.txt") #open file in current directory # f is file object
> > > f =  open ('c:\\Pyprg\ch13 sample5.csv') # specifying full path
```

(ii) The default is reading in text mode. In this mode, while reading from the file the data would be in the format of strings.

(iii) On the other hand, binary mode returns bytes and this is the mode to be used when dealing with non-text files like image or exe files.

12) Write a Python program to modify an existing file.

Answer : **Program: To modify an existing file**

```
import csv
row = ['3: 'Meena','Bangalore']
with open('Student.csv', 'r') as read file:
reader = csv.reader (read File)
lines = list (reader)
lines [3] = row
with open ('Student.csv', 'w') as write file:
# returns the writer object which converts the user data with delimiter.
writer = csv.writer(writefile)
#writerows() method writes multiple rows to a csv file
writer. writerows(lines)
readFile.close()
writeFile.close()
```

Output:

Roll No	**Name**	**City**
1.	Harshini,	Chennai
2.	Adhith,	Mumbai
3.	Meena,	Bangalore
4.	Egiste	Tiruchy
5.	Venkat,	Madurai

13) Write a Python program to read a CSV file with default delimiter comma (,).

Answer : **Program: To read a csv file with comma (,)**

```
#importing csv
import csv
#opening the csv file which is in different location with read mode
with open('c:\\Pyprg\ \sample1.csv', 'r') as F:
#other way to open the file is
f=('C:\\pyprg\\sample1.csv', 'r')
reader = csv.reader(F))
#printing each line of the Data row by row.
print (row)
F. close( )
```

Output:

```
['SNO','NAME', 'CITY']
['12101', 'RAM', 'CHENNAI']
['12102', 'LAVANYA' "TIRUCHY']
['12103', 'LAKSHMAN', 'MADURAI']
```

14) What is the difference between the write mode and append mode.

Answer : **Write mode:**

Open a file for writing. Creates a new file if it does not exist or truncates the file if it exists.

Append mode:

Open for appending at the end of the file without truncating it. Creates a new file if it does not exist.

15) What is the difference between reader() and DictReader() function?

Answer : The main difference between the csv.reader( ) and DictReader( ) is in simple terms csv.reader and csv.writer work with list/ tuple, while csv. DictReader and csv.DictWriter work with dictionary. csv. DictReader and csv. DictWriter take additional argument fieldnames that are used as dictionary keys.

16) How will you create CSV normal file?

Answer : To create a CSV file in Notepad,

(i) First open a new file using

File ⟶New or ctrl +N.

(ii) Then enter the data separating each value with a comma and each row with a new line.

(iii) For example consider the following details

Topic1, Topic2, Topic3

one, two, three

Example1, Example2, Example3

(iv) Save this content in a file with the extension.csv.

17) Write the syntax of reader( ).

Answer : 'The syntax for csv.reader() is

csv.reader(fileobject,delimiter,fmtparams)

where

(i) **file object:** passes the path and the mode of the file.

(ii) **delimiter:** an optional parameter containing the standard dilects like , | etc can be omitted

(iii) **fmtparams:** optional parameter which help to override the default values of the dialects like skipinitialspace, quoting etc. Can be omitted.

18) Write a program to read a file with default delimiter comma.

Answer :

```
#importing csv
import csv
#opening the csv file which is in different location with read mode
with open('c:\\pyprg\\ sample1.csv', 'r') as F:
#other way to open the file is f= ('c:\\pyprg\\ sample1.csv', 'r')
reader = csv.reader(F)
# printing each line of the Data row by row
print(row)
F.close ( )
```

19) How will you create a CSV file that contains comma with data?

Answer : For example, let's say that one of our fields contains commas in the description. If our data looked like the below example:

Roll No	Name	Address
12101	Nivetha	Mylapore, Chennai
12102	Lavanya	Adyar, Chennai
12103	Ram,	Gopalapuram, Chennai

To retain the commas in "Address" column, we can enclose the fields in quotation marks.

For Example:

Roll No	Name	Address
12101	Nivetha,	"Mylapore, Chennai"
12102	Lavanya,	"Adyar, Chennai"
12103	Ram,	"Gopalapuram, Chennai"

20) How will you write a CSV File into a Dictionary?

Answer : Using DictWriter( ) class of CSV module, we can write a CSV file into a dictionary. It creates an object which maps data into a dictionary. The Keys are given by the field names parameter.

Program:

```
import csv
data = [{'MOUNTAIN': 'Everest', 'HIGHEST': '8848'},
[{ 'MOUNTAIN': 'Anamudi', 'HEIGHT': '2695'},
'MOUNTAIN': 'Kanchenjunga', 'HEIGHT': '8586'}]
with open ('c:\\ Pyprg\\ch13\\peah.csv', 'W') as CF:
fields = ['MOUNTAIN', 'HEIGHT']
w.csv.Dictwriter(CF, fieldnames = fields)
w.writeheader( )
w.writerows(data)
print("Writing completed")
CF.close
```

when we open the "peak.csv" filein notepad, we get the output as,

MOUNTAIN	HEIGHT
Everest,	8848
Anamudi,	2695
Kanchenjunga,	8586

Use field names as headings of each column in the csv file. Then, use a Dictwriter( ) to write dictionary data into the "peak.csv" file.

5 Marks

5 x 5 = 25

21) Differentiate Excel file and CSV file.

Answer :

EXCEL	CSV
Excel is a binary file that holds information about all the worksheets in a file, including both content and formatting	CSV format is a plain text format with a series of values separated by commas.
XLS files can only be read by applications that have been especially written to read their format, and can only be written in the same way.	CSV can be opened with any text editor in Windows like notepad, MS Excel, Open Office, etc.
Excel is a spreadsheet that saves files into its own proprietary format viz. xls or xlsx	CSV is a format for saving tabular information into a delimited text file with extension .csv
Excel consumes-more memory while importing data	Importing CSV files can be much faster, and it also consumes less memory

22) Tabulate the different mode with its meaning.

Answer :

PYTHON FILE MODES	DESCRIPTION
'r'	open a file for reading (default)
'w'	Open a file for writing. Creates a new file if it does not exist or truncates the file if it exists.
'x'	Open a file for exclusive creation. If the file already exists, the operation fails.
'a'	Open for appending at the end of the file without truncating it. Creates a new file if it does not exist.
't'	Open in text mode. default
'b'	Open in binary mode.
'+'	Open a file for updating (reading and Writing)

23) Write the different methods to read a File in Python.

Answer : 1. CSV file - data with default delimiter comma(,)

2. CSV file - data with space at the beginning.

3. CSV file - data with quotes

4. CSV file - data with custom Delimiters

1. CSV file - data with default delimiter comma(,):

The following program read a file called "Sample1.csv" with default delimiter comma (,) and print row by row.

Program:

```
#importing csv
import csv
#opening the csv file which is in different location with read mode
with opent('c.\\pyprg\\sample1.csv', 'r') as F:
#other way to open the file is f= ('C:\\pyprg\\ sample1.csv', 'r')
reader = csv.reader(F)
# printing each line of the Data row by row
print(row)
F.close()
```

Output:

```
['SNO', 'NAME', 'CITY']
['12101', 'RAM', 'CHENNAI']
['12102', 'LAVANYA', 'TIRUCHY']
['12103', 'LAKSHMAN', 'MADURAI']
```

2. CSV files - data with spaces at the beginning:

Consider the following file "Sample2.csv containing the following data when opened through notepad.

Topic 1	**Topic 2**	**Topic 3**
One,	two,	three,
Example 1,	Example 2,	Example 3,

Program:

```
import csv
csv.register_dialect ['my Dialect', delimiters=', 'Skipinitialspace= True).
F = open ('c:\\Pyprgl\sample2.csv', 'r')
reader = CSV.reader (F, dialect = 'myDialect')
for row in reader:
print (row)
F.close()
```

Output:

```
['Topic 1', 'Topic 2', 'Topic 3']
['One', 'two', 'three']
['Example 1', 'Example 2', 'Example 3']
```

We can see in "Sample 2.csv" there are spaces after the delimiter due to which the output is also displayed with spaces. These whitespaces can be removed, by registering new dialects using csv. register _dialect( ) class of csv module. A dialect describes the format of the csv file that is to be read. In dialects the Parameter "skipinitialspace" is used for removing whitespaces after the delimiter.

3. CSV File - Data with Quotes:

We can read the csv files with quotes, by registering new dialects using csv. register_dialect( ) class of csv module.

SNO,   Quotes

1, "The Secret to getting ahead is getting started".

2, "Excellence is a continuous process and not an accident."

3, "Work hard dream big never give up and believe Yourself"

4, "Failure is the opportunity to begin again more intelligently".

5, "The successful warrior is the average man, with laser-like focus."

Program:

```
import cSv
csv.register_ dialect ('MyDialect', delimiter =, 'quoting = csv.QUOTE_ALL, skipinitialspace = True)
f=open ('c:\\Pyprg\\ quotes.csv', 'r')
reader = csv.reader (f, dialect = 'myDialect')
for row in reader:
print (row)
```

Output:

```
-
['SNO, 'Quotes']
['1', 'The secret to getting ahead is getting started'.]
['2', 'Excellence is a continuous process and not an accident'.]
['3', 'Work hard dream big never give up and believe yourself'.]
['4', 'Failure is the opportunity to begin again more intelligently':]
['5', 'The successful warrior is the average man with laser- like focus':]
```

4. CSV files with custom Delimiters:

We can read csv file having custom the delimiter by registering a new dialect with the help of csv.register_dialect( ).

In the following file called "sample4.csv", each column is separated with |(Pipe Symbol)

Roll No	**Name**	**City**
12101	Arun	Chennai
12102	Meena	Kovai
12103	Ram	Nellai
103	Ayush	M
104	Abinandh	M

Program:

```
import csv
Csv. register_dialect('myDialect', delimiter= '|')
with open (c:\\pyprg\sample 4.csv', 'r') as f:
reader = csv.reader (f, dialect = "my dialect")
for row is reader:
print (row)
f.close()
```

Output:

```
['Roll no', 'Name', 'City]
['12101', 'Arun', 'Chennai']
['12102', 'Meena', 'Kovai']
['12103', 'Ram', 'Nellai']
```

24) Write a Python program to write a CSV File with custom quotes.

Answer : We can write the csv file with quotes, by registering new dialects using csv.register_dialect() class of csv module.

Program:

```
import csv
info = [['SNO: 'Person: 'DOB'],
['1', 'Madhu,' '18/12/2001'],
['2', 'Sowmya', '19/2/1998'],
['3', 'Sangeetha', '20/3/1999'],
['4', 'Eshwar', '21/4/2000'],
['5', 'Anand', '22/5/2001']]
csv.register_dialect('MyDialect',quoting=csv.QUOTE_ALL)
with open('c:\\pyprg\\ch13\\person.csv', 'w') as f:
writer = csv.writer(f, dialect='myDialect')
for row in info:
writer. writerow(row)
f.close()
```

Output

```
file: "Person.csv"
"SNO","Person", "DOB", "1", "Madhu", "18/12/2001"
"2, "Sowmya", "19/2/1998", "3", "Sangeetha",
"20/3/1999", "4", "Eshwar", "21/4/2000"
"5", "Anand", "22/5/2001".
```

25) Write the rules to be followed to format the data in a CSV file.

Answer : Rules to be followed to format data in a CSV file:

(i) Each record (row of data) is to be located on a separate line, delimited by a line break by pressing enter key.

For example:↲

xxx,yyy↲

↲denotes enter Key to be pressed

(ii) The last record in the file mayor may not have an ending line break.

For example:

ppp, qqq↲

yyy, xxx

(iii) There may be an optional header line appearing as the first line of the file with the same format as normal record lines. The header will contain names corresponding to the fields in the file and should contain the same number of fields as the records in the rest of the file.

For example:

field_name 1, field_name 2, field_name 3↲

aaa,bbb,ccc↲

zzz, yyy, xxx CRLF(Carriage Return and Line Feed)

(iv) Within the header and each record, there may be one or more fields, separated by commas. Spaces are considered part of a field and should not be ignored. The last field in the record must not be followed by a comma.

For example:

Red, Blue

(v) Each field mayor may not be enclosed in double quotes. If fields are not enclosed with double quotes, then double quotes may not appear inside the fields

For example:

"Red","Blue","Green"↲

Black, White, Yellow

(vi) Fields containing line breaks (CRLF), double quotes, and commas should be enclosed in double-quotes.

For example:

Red, ",", Blue CRLF

Red, Blue, Green

(vii) If double-quotes are used to enclose fields, then a double-quote appearing inside a field must be preceded with another double quote.

For example:

"Red, " "Blue", "Green",

White