

The report for the project

Language feature

Control structures are a flowchart method to represent the execution flow of programming languages, and there are two type

1- Selection used for decisions, branching - choosing between 2 or more alternative paths.

- **if**
- **if...else**

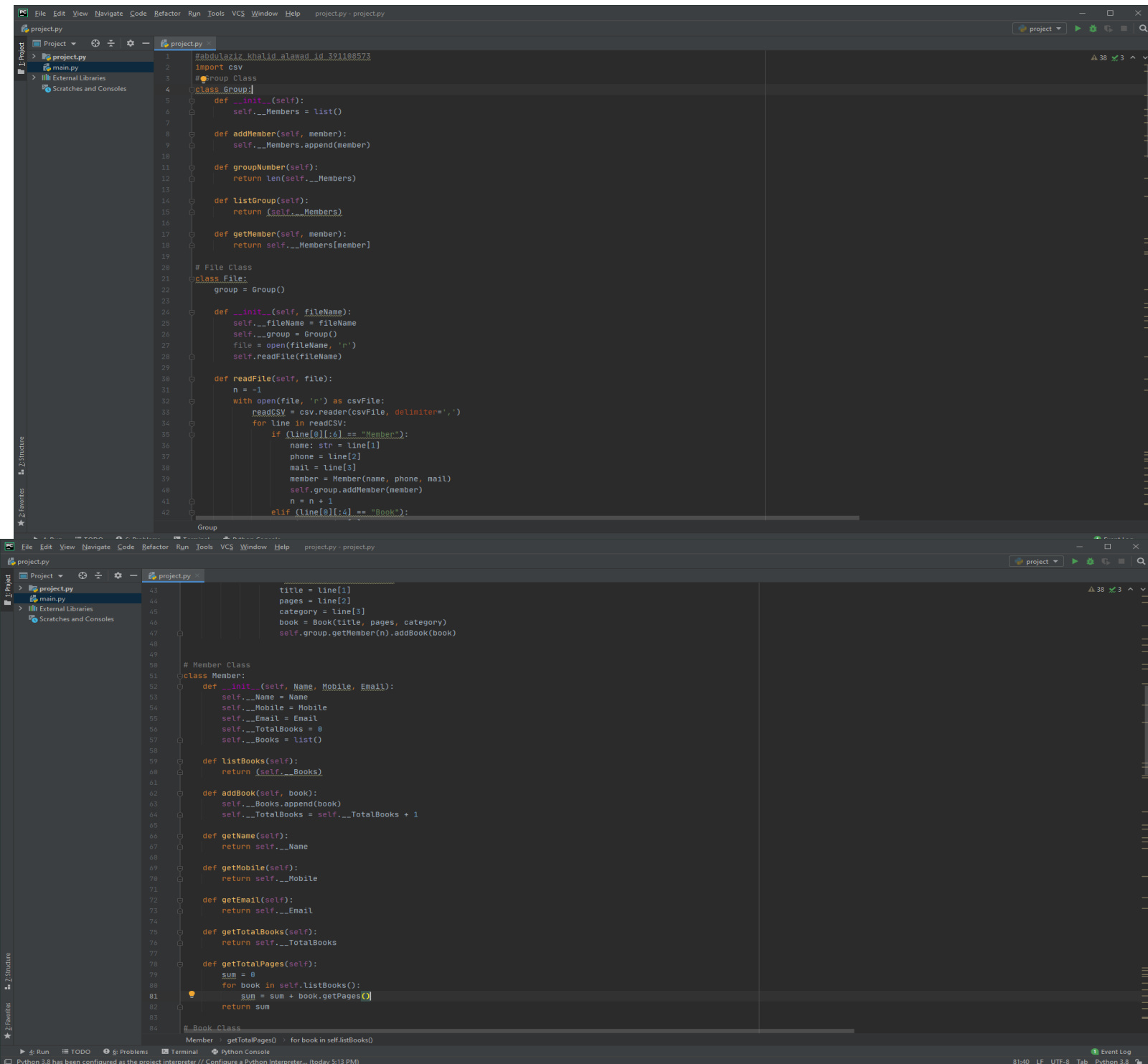
2- Repetition used for looping, i.e. repeating a piece of code multiple times in a row. keep repeat Until the condition turn false

- **while loop**
- **for loop**

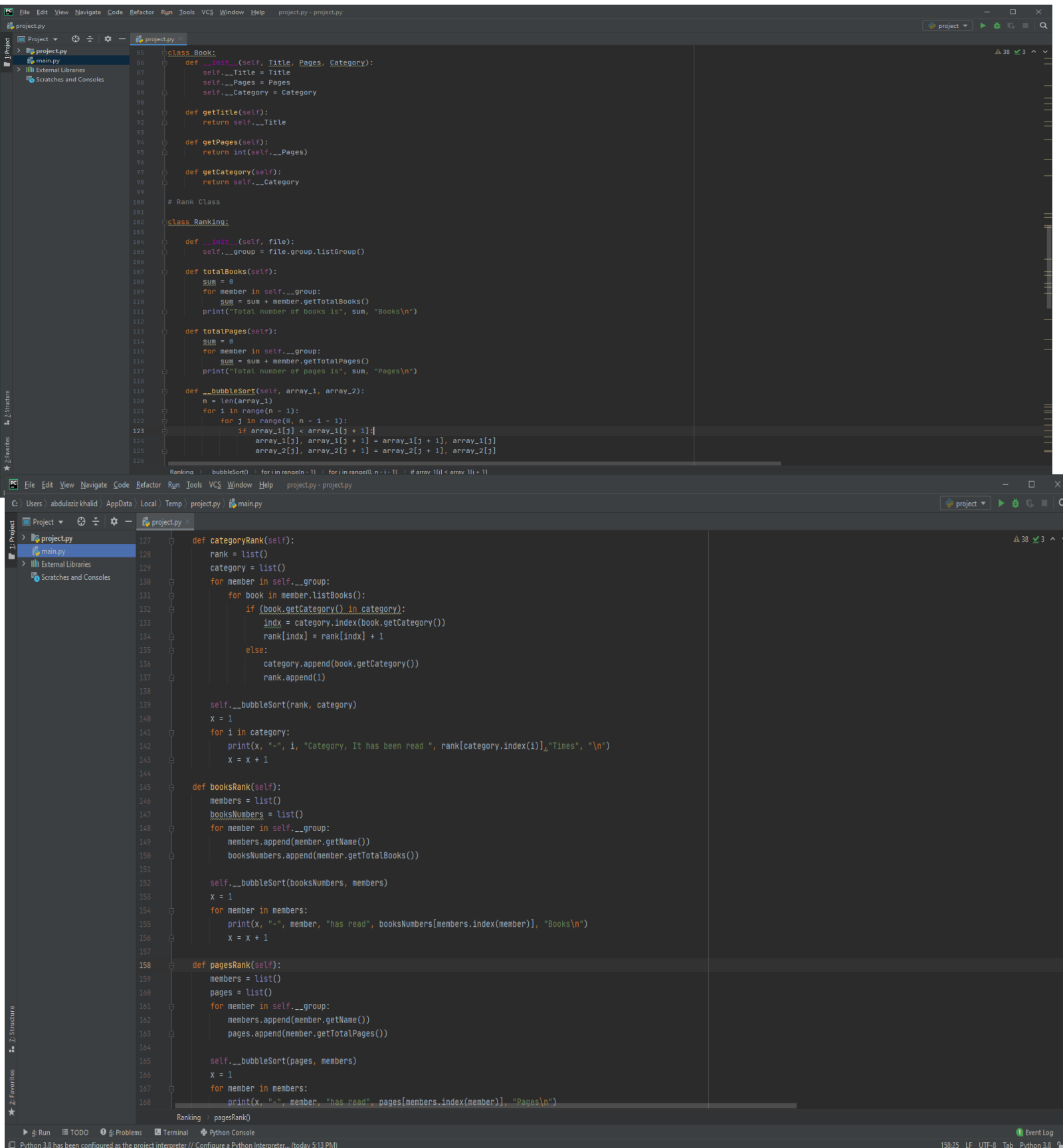
Language feature	Class/filename	Line No.
if(condition)else	Class File /project.py Class ranking /project.py project.py/main	34 and 41 122 and 131 178 ,181,184,187,190and193
While loop condition:	project.py/main	173
For loop initialize in range:	Class File /project.py Class Member/ project.py Class ranking /project.py	33 79 108,114,120,121,129,130,140,141,153,166
Break	project.py/main	197

Screenshots of the program

1-program



```
1 Abdulaziz khalid alawad_id.391108573
2 import csv
3 #Group Class
4 class Group:
5     def __init__(self):
6         self.__Members = list()
7
8     def addMember(self, member):
9         self.__Members.append(member)
10
11     def groupNumber(self):
12         return len(self.__Members)
13
14     def listGroup(self):
15         return (self.__Members)
16
17     def getMember(self, member):
18         return self.__Members[member]
19
20 # File Class
21 class File:
22     group = Group()
23
24     def __init__(self, fileName):
25         self.__fileName = fileName
26         self.__group = Group()
27         file = open(fileName, 'r')
28         self.readFile(fileName)
29
30     def readFile(self, file):
31         n = -1
32         with open(file, 'r') as csvFile:
33             readCSV = csv.reader(csvFile, delimiter=',')
34             for line in readCSV:
35                 if (line[0][1:6] == "Member"):
36                     name = line[1]
37                     phone = line[2]
38                     mail = line[3]
39                     member = Member(name, phone, mail)
40                     self.group.addMember(member)
41                     n = n + 1
42                 elif (line[0][1:6] == "Book"):
43                     title = line[1]
44                     pages = line[2]
45                     category = line[3]
46                     book = Book(title, pages, category)
47                     self.group.getMember(n).addBook(book)
48
49 # Member Class
50 class Member:
51     def __init__(self, Name, Mobile, Email):
52         self.__Name = Name
53         self.__Mobile = Mobile
54         self.__Email = Email
55         self.__TotalBooks = 0
56         self.__Books = list()
57
58     def listBooks(self):
59         return (self.__Books)
60
61     def addBook(self, book):
62         self.__Books.append(book)
63         self.__TotalBooks = self.__TotalBooks + 1
64
65     def getName(self):
66         return self.__Name
67
68     def getMobile(self):
69         return self.__Mobile
70
71     def getEmail(self):
72         return self.__Email
73
74     def getTotalBooks(self):
75         return self.__TotalBooks
76
77     def getTotalPages(self):
78         sum = 0
79         for book in self.listBooks():
80             sum = sum + book.getPages()
81         return sum
82
83 # Book Class
84 class Book:
85     def __init__(self, title, pages, category):
86         self.__title = title
87         self.__pages = pages
88         self.__category = category
89
90     def getTitle(self):
91         return self.__title
92
93     def getPages(self):
94         return self.__pages
95
96     def getCategory(self):
97         return self.__category
98
99     def addBook(self, book):
100         self.__Books.append(book)
101         self.__TotalBooks = self.__TotalBooks + 1
102
103     def listBooks(self):
104         return (self.__Books)
105
106     def getName(self):
107         return self.__Name
108
109     def getMobile(self):
110         return self.__Mobile
111
112     def getEmail(self):
113         return self.__Email
114
115     def getTotalBooks(self):
116         return self.__TotalBooks
117
118     def getTotalPages(self):
119         sum = 0
120         for book in self.listBooks():
121             sum = sum + book.getPages()
122         return sum
```



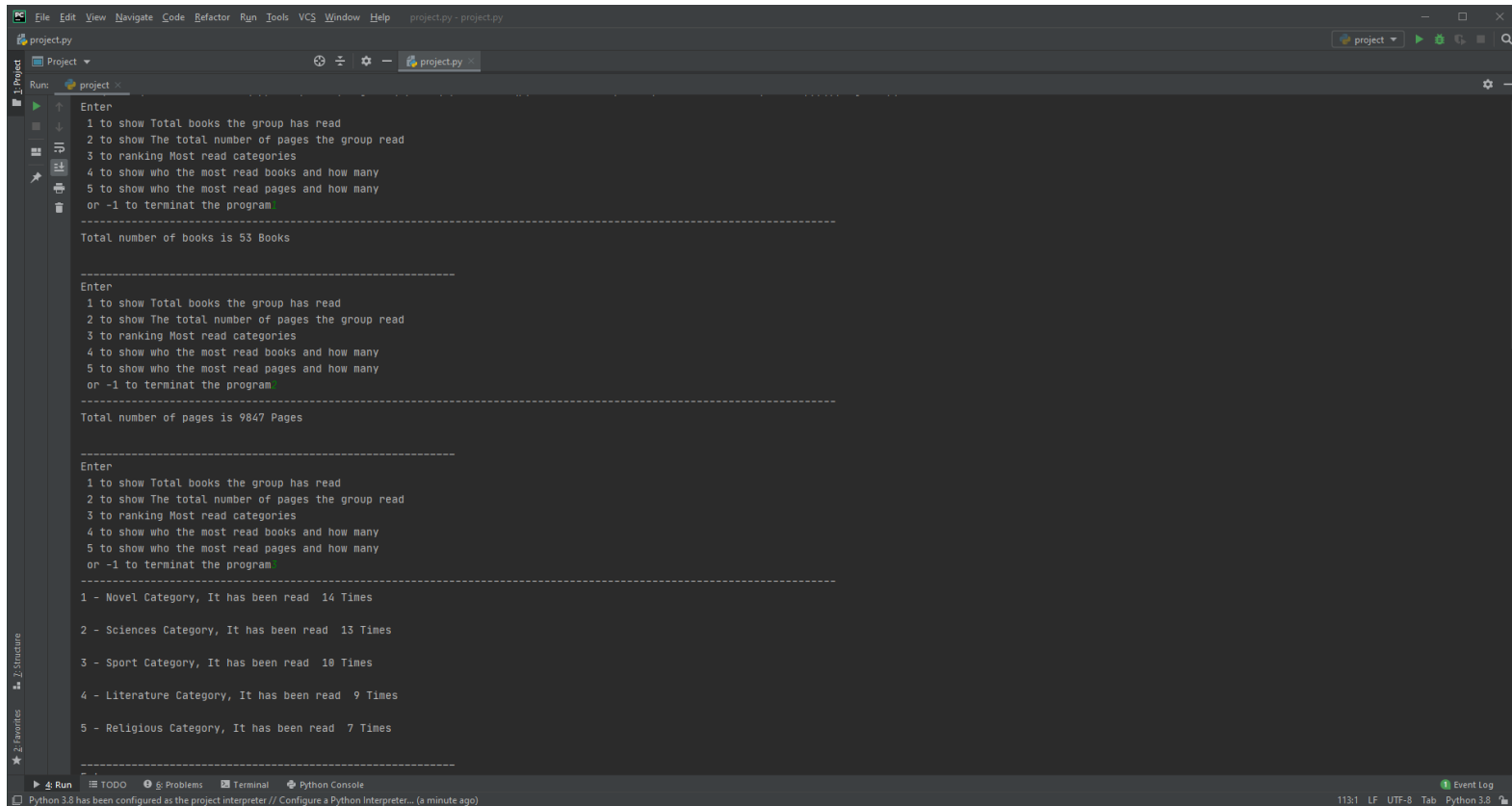
```
project.py
85 class Book:
86     def __init__(self, Title, Pages, Category):
87         self.__Title = Title
88         self.__Pages = Pages
89         self.__Category = Category
90
91     def getTitle(self):
92         return self.__Title
93
94     def getPages(self):
95         return int(self.__Pages)
96
97     def getCategory(self):
98         return self.__Category
99
100 # Rank Class
101
102 class Ranking:
103
104     def __init__(self, file):
105         self.__group = file.group.listGroup()
106
107     def totalBooks(self):
108         sum = 0
109         for member in self.__group:
110             sum = sum + member.getTotalBooks()
111         print("Total number of books is", sum, "Books\n")
112
113     def totalPages(self):
114         sum = 0
115         for member in self.__group:
116             sum = sum + member.getTotalPages()
117         print("Total number of pages is", sum, "Pages\n")
118
119     def __bubbleSort(self, array_1, array_2):
120         n = len(array_1)
121         for i in range(n - 1):
122             for j in range(0, n - i - 1):
123                 if array_1[j] < array_1[j + 1]:
124                     array_1[j], array_1[j + 1] = array_1[j + 1], array_1[j]
125                     array_2[j], array_2[j + 1] = array_2[j + 1], array_2[j]
126
main.py
127 def categoryRank(self):
128     rank = list()
129     category = list()
130     for member in self.__group:
131         for book in member.listBooks():
132             if (book.getCategory() in category):
133                 indx = category.index(book.getCategory())
134                 rank[indx] = rank[indx] + 1
135             else:
136                 category.append(book.getCategory())
137                 rank.append(1)
138
139     self.__bubbleSort(rank, category)
140     x = 1
141     for i in category:
142         print(x, "-", i, "Category, It has been read ", rank[category.index(i)], "Times", "\n")
143         x = x + 1
144
145 def booksRank(self):
146     members = list()
147     booksNumbers = list()
148     for member in self.__group:
149         members.append(member.getName())
150         booksNumbers.append(member.getTotalBooks())
151
152     self.__bubbleSort(booksNumbers, members)
153     x = 1
154     for member in members:
155         print(x, "-", member, "has read", booksNumbers[members.index(member)], "Books\n")
156         x = x + 1
157
158 def pagesRank(self):
159     members = list()
160     pages = list()
161     for member in self.__group:
162         members.append(member.getName())
163         pages.append(member.getTotalPages())
164
165     self.__bubbleSort(pages, members)
166     x = 1
167     for member in members:
168         print(x, "-", member, "has read", pages[members.index(member)], "Pages\n")
169
Ranking > pagesRank()
```

```
159     members = list()
160     pages = list()
161     for member in self.__group:
162         members.append(member.getName())
163         pages.append(member.getTotalPages())
164
165     self.__bubbleSort(pages, members)
166     x = 1
167     for member in members:
168         print(x, "-", member, "has read", pages[members.index(member)], "Pages\n")
169         x = x + 1
170
171
172 f = File("inputFile.txt")
173 s = Ranking(f)
174 while True:
175     l = int(input(
176         "Enter\n 1 to show Total books the group has read\n 2 to show The total number of pages the group read \n 3 to ranking Most read categories\n 4 to show who the most read books and how many \n
177     ")
178     print(
179         "-----")
180     if l == 1:
181         s.totalBooks()
182         print("-----")
183     elif l == 2:
184         s.totalPages()
185         print("-----")
186     elif l == 3:
187         s.categoryRank()
188         print("-----")
189     elif l == 4:
190         s.booksRank()
191         print("-----")
192     elif l == 5:
193         s.pagesRank()
194         print("-----")
195     elif l == -1:
196         print("you have terminated the program thank you")
197         print("-----")
198         break
199
```

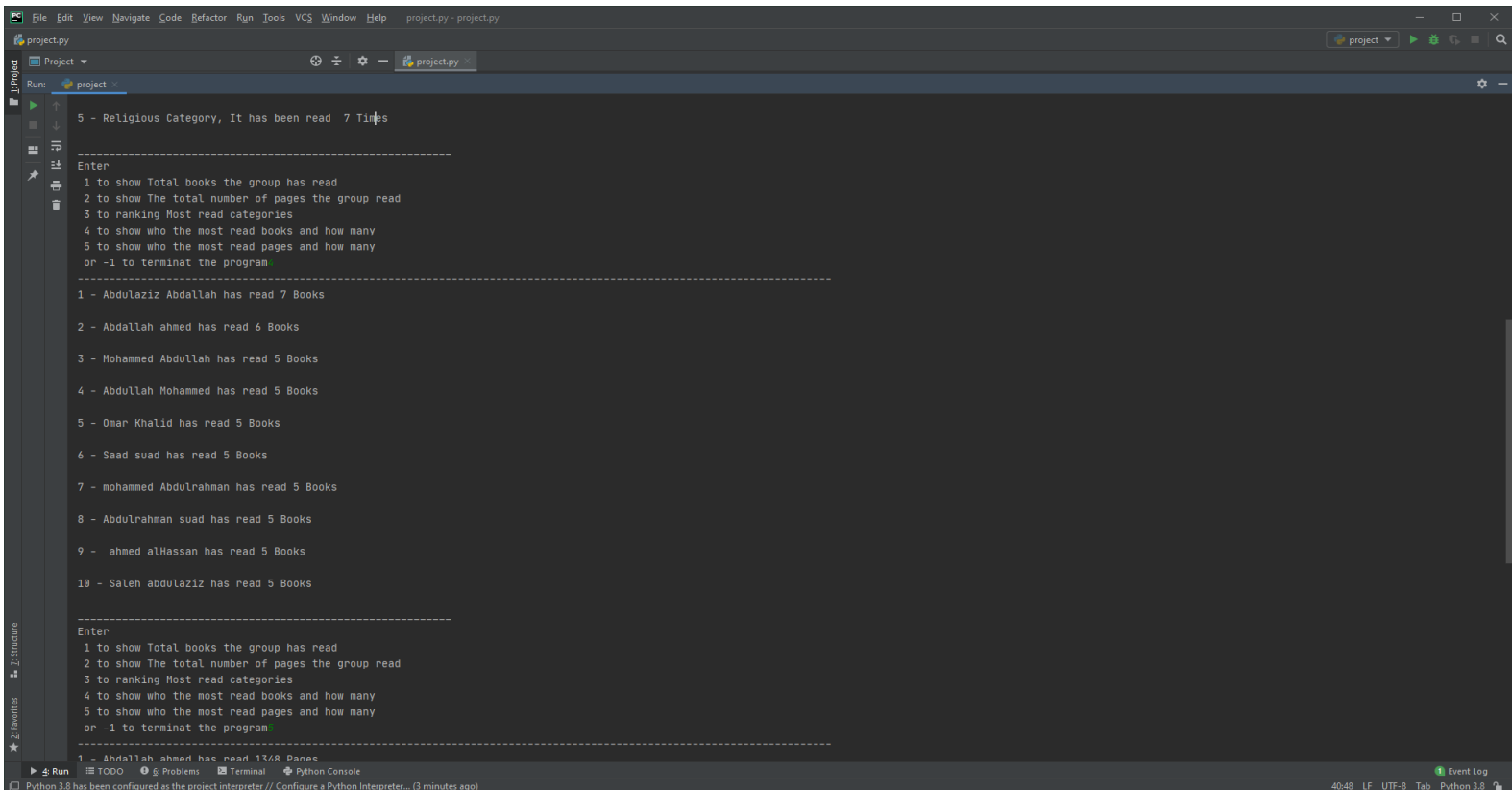
2-input

```
inputFile.txt - Notepad
File Edit Format View Help
Member 1,Mohammed Abdullah,531432019,x@x.x
Book 1,lion and rabbit,200,Novel
Book 2,Poetry,200,Literature
Book 3,Football,150,Sport
Book 4,Python,300,Sciences
Book 5, One Hundred Years of Solitude,120,Novel
Member 2,Abdullah Mohammed,,hsajkdkk@ashdk.jsahkd
Book 1,jhjng,220,Novel
Book 2,english,210,Literature
Book 3,beasball,70,Sport
Book 4,java,180,Sciences
Book 5,math,300,Sciences
Member 3,Omar Khalid,531434783,sahdk@ashdj.iahd
Book 1,the path,50,Novel
Book 2,c,333,Sciences
Book 3,tins,221,Sport
Book 4,wild life,178,Sciences
Book 5,famliy,90,Novel
Member 4,Saad suad,553728678,jhdkaklsj@jsahd.asjd
Book 1,hero,212,Novel
Book 2,manegar,110,Sport
Book 3,biscs in football,142,Sport
Book 4,Sahih al-Bukhari,321,Religious
Book 5,MWA,192,Sport
Member 5,mohammed Abdulrahman,552637862,gasajshd@ndk.com
Book 1,the trip,32,Novel
Book 2,arab gramer,120,Literature
Book 3,Sahih al-muslim,200,Religious
Book 4,fath al bari,100,Religious
Book 5,biology,300,Sciences
Member 6,Abdulrahman suad,527638293,aushd@shajdkj.djahs
Book 1,jkhksajh,110,Novel
Book 2,jsakhsa,310,Literature
Book 3,jsahks,242,Novel
Book 4,ksajllksa,322,Religious
Book 5,kjsaljas,102,Novel
Member 7,Abdallah ahmed,527168382,dsahjkgd@uhd.co
Book 1,skajljs,350,Literature
Book 2,jdksllkds,210,Literature
Book 3,skajhksjah,142,Sport
Book 4,eiwuoiuwe,202,Religious
Book 5,jshksajh,342,Literature
Book 6,fdiwvsdfsuwe,102,Religious
Member 8,Abdulaziz Abdullah,537887479,vdj647883d@gmail.com
Book 1,jhsakjsj,222,Novel
Book 2,zjkhkzas,101,Sport
Book 3,kjsaljslak,162,Novel
Book 4,skajhksa,201,Sport
Book 5,kjsahkhajk,110,Sport
Book 6,aksljls32ajk,253,Sciences
Book 7,jhsakjsj,122,Novel
Member 9, ahmed alHassan,532736919,v337hrrhd@gmail.com
Book 1,ksajhkhjah,50,Sciences
Book 2,wjqqiioi,70,Sciences
Book 3,aksljlsajk,153,Sciences
Book 4,klsajlajk,182,Religious
Book 5,aksjlkjal,220,Sciences
Member 10,Saleh abdulaziz,537283948,vdjshd@gmail.com
Book 1,slkajlsa,350,Novel
Book 2,lksajljs,211,Sciences
Book 3,ljkdksask,233,Sciences
Book 4,sajlkjllks,102,Literature
Book 5,sajklksj,120,Literature
```

3-Output



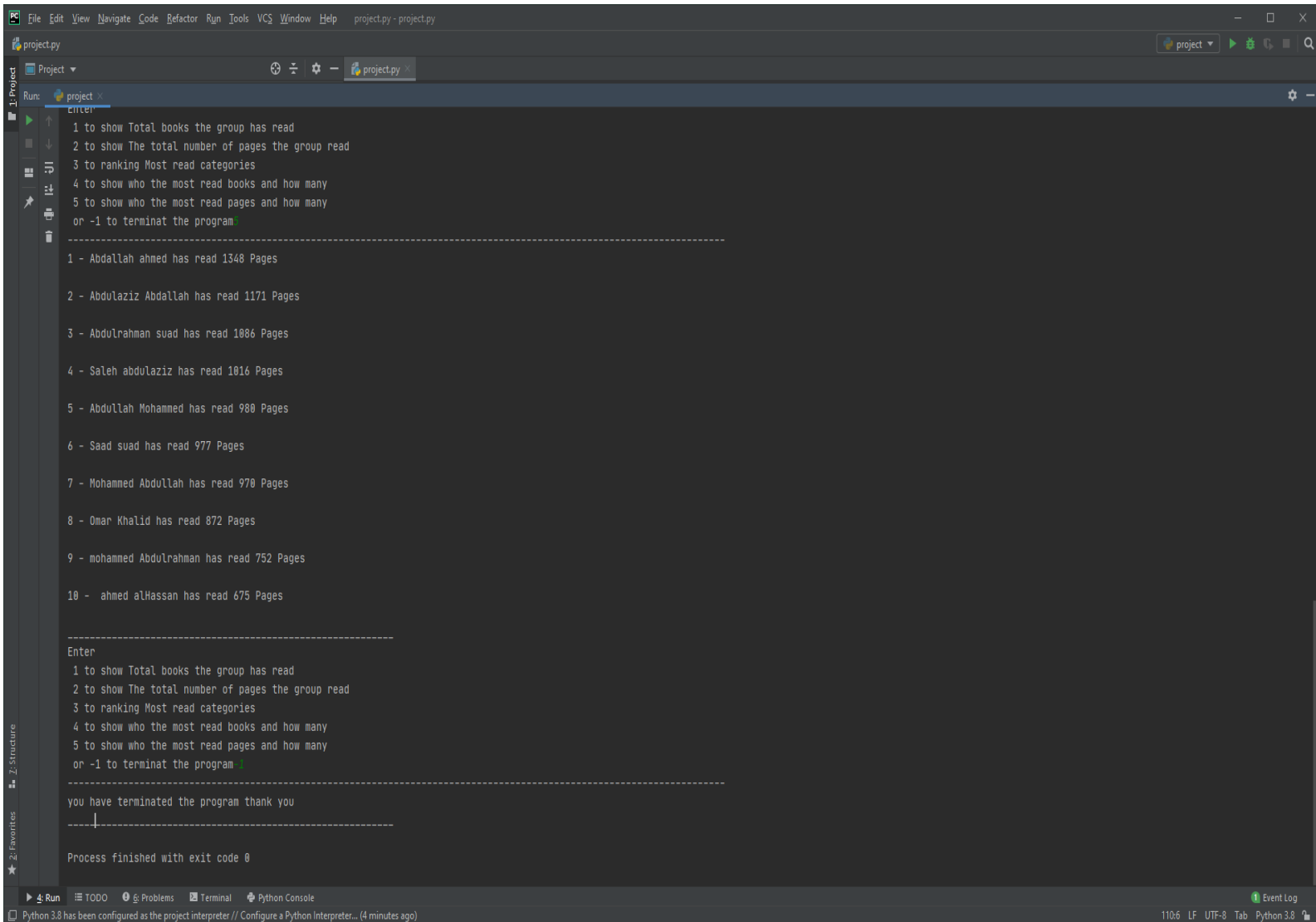
```
File Edit View Navigate Code Refactor Run Tools VCS Window Help project.py - project.py
project.py
Project
Run: project
Enter
1 to show Total books the group has read
2 to show The total number of pages the group read
3 to ranking Most read categories
4 to show who the most read books and how many
5 to show who the most read pages and how many
or -1 to terminat the program
-----
Total number of books is 53 Books
-----
Enter
1 to show Total books the group has read
2 to show The total number of pages the group read
3 to ranking Most read categories
4 to show who the most read books and how many
5 to show who the most read pages and how many
or -1 to terminat the program
-----
Total number of pages is 9847 Pages
-----
Enter
1 to show Total books the group has read
2 to show The total number of pages the group read
3 to ranking Most read categories
4 to show who the most read books and how many
5 to show who the most read pages and how many
or -1 to terminat the program
-----
1 - Novel Category, It has been read 14 Times
2 - Sciences Category, It has been read 13 Times
3 - Sport Category, It has been read 10 Times
4 - Literature Category, It has been read 9 Times
5 - Religious Category, It has been read 7 Times
-----
Python 3.8 has been configured as the project interpreter // Configure a Python Interpreter... (a minute ago)
1131 LF UTF-8 Tab Python 3.8
```



```
File Edit View Navigate Code Refactor Run Tools VCS Window Help project.py - project.py
project.py
Project
Run: project
5 - Religious Category, It has been read 7 Times
-----
Enter
1 to show Total books the group has read
2 to show The total number of pages the group read
3 to ranking Most read categories
4 to show who the most read books and how many
5 to show who the most read pages and how many
or -1 to terminat the program
-----
1 - Abdulaziz Abdallah has read 7 Books
2 - Abdallah ahmed has read 6 Books
3 - Mohammed Abdullah has read 5 Books
4 - Abdullah Mohammed has read 5 Books
5 - Omar Khalid has read 5 Books
6 - Saad suad has read 5 Books
7 - mohammed Abdulrahman has read 5 Books
8 - Abdulrahman suad has read 5 Books
9 - ahmed alHassan has read 5 Books
10 - Saleh abdulaziz has read 5 Books
-----
Enter
1 to show Total books the group has read
2 to show The total number of pages the group read
3 to ranking Most read categories
4 to show who the most read books and how many
5 to show who the most read pages and how many
or -1 to terminat the program
-----
1 - Abdallah ahmed has read 1148 Pages
Python 3.8 has been configured as the project interpreter // Configure a Python Interpreter... (3 minutes ago)
4048 LF UTF-8 Tab Python 3.8
```

name:abdulaziz khalid alawad

id 391108573



```
File Edit View Navigate Code Refactor Run Tools VCS Window Help project.py - project.py
project.py
Project
Run: project
Enter
1 to show Total books the group has read
2 to show The total number of pages the group read
3 to ranking Most read categories
4 to show who the most read books and how many
5 to show who the most read pages and how many
or -1 to terminat the program
-----
1 - Abdallah ahmed has read 1348 Pages
2 - Abdulaziz Abdallah has read 1171 Pages
3 - Abdulrahman suad has read 1886 Pages
4 - Saleh abdulaziz has read 1816 Pages
5 - Abdullah Mohammed has read 980 Pages
6 - Saad suad has read 977 Pages
7 - Mohammed Abdullah has read 970 Pages
8 - Omar Khalid has read 872 Pages
9 - mohammed Abdulrahman has read 752 Pages
10 - ahmed alHassan has read 675 Pages
-----
Enter
1 to show Total books the group has read
2 to show The total number of pages the group read
3 to ranking Most read categories
4 to show who the most read books and how many
5 to show who the most read pages and how many
or -1 to terminat the program
-----
you have terminated the program thank you
-----
Process finished with exit code 0
Run TODO Problems Terminal Python Console
Python 3.8 has been configured as the project interpreter // Configure a Python Interpreter... (4 minutes ago)
1106 LF UTF-8 Tab Python 3.8
```