

Lab-Mid-210286

November 24, 2022

Computer Application in Engineering Design Lab

Mid Term, BCE Fall 2022

Student Name: Osama Anees Mirza

Student Roll Number: 210286

Instructor: Muhammad Farooq Khan

Date: 24-Nov-2022

```
[44]: class1=input("Enter Class#1 Name: ")
      class2=input("Enter Class#4 Name: ")
      class3=input("Enter Class#3 Name: ")
      class4=input("Enter Class#2 Name: ")
```

```
Enter Class#1 Name: CE-112L MTS 2A
Enter Class#4 Name: CE-112L MTS 2B
Enter Class#3 Name: CE-112L BEEP 2A
Enter Class#2 Name: CE-115L BEBME 1A
```

```
[28]: def menu():
      print("Press 1 for CE-112L MTS 2A")
      print("Press 2 for CE-112L MTS 2B")
      print("Press 3 for CE-112L BEEP 2-A")
      print("Press 4 for CE-115L BEBME 1A")
      print("Press 5 to Exit")
```

```
[29]: import numpy as np
      import pandas as pd
      classname="ClassName"
      menu()
      op=int(input("Select Options: "))
      while(op!=5):
          if(op==1):
              df = pd.read_csv("/home/baymax/Air Uni Code/Sir-Farooq/Mid/
↳CE-112LBEEP2A.csv")
              # print(df)
              classname="CE-112LBEEP2AResult.csv"
              break
```

```

if(op==2):
    df = pd.read_csv("/home/baymax/Air Uni Code/Sir-Farooq/Mid/CE-112LMTS2B.
↪csv")
    # print(df)
    classname="CE-112LMTS2BResult.csv"
    break
elif(op==3):
    df = pd.read_csv("/home/baymax/Air Uni Code/Sir-Farooq/Mid/
↪CE-112LBEEP2A.csv")
    # print(df)
    classname="CE-112LBEEP2AResult.csv"
    break
elif(op==4):
    df = pd.read_csv("/home/baymax/Air Uni Code/Sir-Farooq/Mid/
↪CE-115LBEBME1A.csv")
    # print(df)
    classname="CE-115LBEBME1AResult.csv"
    break
elif(op==5):
    print("Exiting...")
else:
    print("Wrong input. Run again")
    menu()
    op=int(input("Select Options: "))

```

Press 1 for CE-112L MTS 2A
 Press 2 for CE-112L MTS 2B
 Press 3 for CE-112L BEEP 2-A
 Press 4 for CE-115L BEBME 1A
 Press 5 to Exit

Select Options: 3

```

[4]: w1=w2=w3=w4=w5=0
while(w1+w2+w3+w4+w5!=100 or w1+w2+w3+w4+w5<100):
    w1=int(input("Enter Weightage of Lab Reports:"))
    w2=int(input("Enter Weightage of Lab Performance:"))
    w3=int(input("Enter Weightage of Midterm:"))
    w4=int(input("Enter Weightage of Final term:"))
    w5=int(input("Enter Weightage of CEA:"))
    if(w1+w2+w3+w4+w5!=100):
        print("The Weightages should add up to 100")

```

Enter Weightage of Lab Reports: 20
 Enter Weightage of Lab Performance: 20
 Enter Weightage of Midterm: 20
 Enter Weightage of Final term: 20
 Enter Weightage of CEA: 20

```
[30]: def display():
    print("Press 1 to display class result: ")
    print("Press 2 To generate class result in csv: ")
    print("Press 3 for displaying student info: ")
    print("Press 4 to exit: ")
```

```
[37]: def CalculateClassResult():
    # Lab Performance
    LabPer=np.array(df.iloc[:,2:16])
    ObtainedLabPer=np.sum(LabPer,axis=1,dtype=float)
    # (obtained marks/total marks)*weightage
    for i in range (len(ObtainedLabPer)):
        ObtainedLabPer[i]=(ObtainedLabPer[i]/210)*w1
    # print(ObtainedLabPer.reshape(23,1))

    # Lab Report
    LabReport=np.array(df.iloc[:,16:30])
    ObtainedLabReport=np.sum(LabReport,axis=1,dtype=float)
    # (obtained marks/total marks)*weightage
    for i in range (len(ObtainedLabReport)):
        ObtainedLabReport[i]=(ObtainedLabReport[i]/210)*w2
    # print(ObtainedLabReport.reshape(23,1))

    # MidTerm
    Mid=np.array(df.iloc[:,30:31])
    ObtainedMid=np.sum(Mid,axis=1,dtype=float)
    # (obtained marks/total marks)*weightage
    for i in range (len(Mid)):
        ObtainedMid[i]=(ObtainedMid[i]/55)*w3
    # print(ObtainedMid.reshape(23,1))

    # Final Term
    Final=np.array(df.iloc[:,31:32])
    ObtainedFinal=np.sum(Final,axis=1,dtype=float)
    for i in range (len(Final)):
        ObtainedFinal[i]=(ObtainedFinal[i]/50)*w4
    # print(ObtainedFinal.reshape(23,1))

    # CEA
    CEA=np.array(df.iloc[:,32:33])
    ObtainedCEA=np.sum(CEA,axis=1,dtype=float)
    # print(ObtainedCEA)

    for i in range (len(CEA)):
        ObtainedCEA[i]=(ObtainedCEA[i]/20)*w5
    # print(ObtainedCEA.reshape(23,1))
```

```

ResultList=[]
TotalResult=[]
RandomList=[]
rollnumber=df[("Roll numbers")]
NameList=df[("Names")]
rollnumber=np.array(rollnumber)
for i in range(len(rollnumber)):
    RandomList.
    ↪append([rollnumber[i],NameList[i],ObtainedLabPer[i],ObtainedLabReport[i],ObtainedMid[i],Obt
    1

    df4=pd.DataFrame(RandomList)
    Sum=np.array(df4.iloc[:,2:])
    S=np.sum(Sum,axis=1,dtype=float)

    for i in range (len(rollnumber)):
        ResultList.
    ↪append([rollnumber[i],NameList[i],ObtainedLabPer[i],ObtainedLabReport[i],ObtainedMid[i],Obt
    2

    # Calculating Grades
    for i in range (len(rollnumber)):
        if(ResultList[i][7]>=90):
            ResultList[i].append('A')
        elif(ResultList[i][7]>=80):
            ResultList[i].append('B')
        elif(ResultList[i][7]>=70):
            ResultList[i].append('C')
        elif(ResultList[i][7]>=60):
            ResultList[i].append('D')
        elif(ResultList[i][7]>=50):
            ResultList[i].append('E')
        elif(ResultList[i][7]<=50):
            ResultList[i].append("F")
    return ResultList

```

```
[38]: ResultList=CalculateClassResult()
```

```
[33]: def FindByRollNumber():
    Info="Student Not Found!"
    for i in range(len(ResultList)):
        if(ResultList[i][0]==roll:
            Info=ResultList[i]
            break
    print(Info)

```

```
[34]: def TotalGrade():
    AllTotalGrades=np.array(df1.iloc[:,2:])
    TotalSum=np.sum(AllTotalGrades,axis=1,dtype=float)

```

```
return TotalSum
```

```
[43]: display()
import csv
op=int(input("Select Options: "))
while(1):
    if(op==1):
        CalculateClassResult()
        file = open('result.csv', 'w', newline='')
        with file:
            write = csv.writer(file)
            write.writerows(ResultList)
            df1=pd.DataFrame(ResultList)
            df1.columns=["Roll Number","Names","Lab Performance","Lab Report","Mid_
↳Term","Final Term","CEA","Total","Grade"]
            print(df1)
            print("\n")
            display()
            op=int(input("Select Options: "))
    elif(op==2):
        file = open('result.csv', 'w', newline='')
        with file:
            write = csv.writer(file)
            write.writerows(ResultList)
            df1=pd.DataFrame(ResultList)
            df1.columns=["Roll Number","Names","Lab Performance","Lab Report","Mid_
↳Term","Final Term","CEA","Total","Grade"]
            print("Saved the result in result.csv\n")
            display()
            op=int(input("Select Options: "))
    elif(op==3):
        roll=int(input("Enter Student Roll Number: "))
        FindByRollNumber()
        print("\n")
        display()
        op=int(input("Select Options: "))
    elif(op==4):
        print("\n")
        print("Exiting.....\n")
        break
    else:
        print("Invalid Option. The Program will run again")
        print("\n")
        display()
        op=int(input("Select Options: "))
```

Press 1 to display class result:

Press 2 To generate class result in csv:
 Press 3 for displaying student info:
 Press 4 to exit:

Select Options: 1

	Roll Number	Names	Lab Performance	Lab Report \
0	210319	Muhammad Ammar Bajwa	12.095238	14.190476
1	210323	Waleed Hussain	12.571429	11.619048
2	210325	Shahzaib Malik	15.523810	13.809524
3	210327	Muhammad Tayyab Saddiq	10.190476	12.095238
4	210331	Hadia Zainab Raza	12.000000	6.952381
5	210335	Syeda Imtashal Fatima Jaffari	11.238095	10.190476
6	210339	Azlan Muhammad	8.857143	8.952381
7	210341	Abdullah Zahid	14.476190	16.190476
8	210351	Muammar Rehman	10.761905	13.238095
9	210355	Abdullah Khan	11.333333	8.666667
10	210357	Usama Khalid	11.714286	15.619048
11	210359	Muhammad Kazim	12.571429	14.761905
12	210363	Muhammad Talha	11.142857	6.095238
13	210365	Muhammad Usman	14.190476	13.809524
14	210369	Mudassar Zahoor	15.523810	10.476190
15	210371	Abdul Baasit	15.809524	11.714286
16	210373	Taha Khalid	10.476190	12.190476
17	210377	Abdullah Zulfiqar	11.428571	12.380952
18	210379	Usama Zulfiqar	12.571429	13.523810
19	210381	Ahmad Mahtab Cheema	12.285714	15.619048
20	210383	Adnan Bashir	10.285714	13.904762
21	211986	Shaoib ul Hassan	11.809524	12.857143
22	211988	Muhammad Ali Khan	11.523810	12.666667

	Mid Term	Final Term	CEA	Total	Grade
0	15.454545	15.6	7.0	64.340260	D
1	12.363636	7.6	15.0	59.154113	E
2	11.090909	15.2	20.0	75.624242	C
3	8.181818	12.4	14.0	56.867532	E
4	10.727273	5.2	16.0	50.879654	E
5	10.181818	10.0	2.0	43.610390	F
6	8.363636	17.6	14.0	57.773160	E
7	12.545455	9.6	3.0	55.812121	E
8	9.636364	12.4	4.0	50.036364	E
9	5.272727	5.6	18.0	48.872727	F
10	8.727273	8.8	7.0	51.860606	E
11	12.000000	17.6	7.0	63.933333	D
12	2.909091	18.8	19.0	57.947186	E
13	10.181818	0.4	13.0	51.581818	E
14	14.363636	13.6	0.0	53.963636	E
15	10.909091	7.2	15.0	60.632900	D
16	11.272727	13.6	4.0	51.539394	E

17	10.363636	12.8	1.0	47.973160	F
18	10.363636	9.6	3.0	49.058874	F
19	12.545455	16.0	4.0	60.450216	D
20	6.909091	2.4	18.0	51.499567	E
21	11.272727	9.6	16.0	61.539394	D
22	4.727273	19.6	19.0	67.517749	D

Press 1 to display class result:

Press 2 To generate class result in csv:

Press 3 for displaying student info:

Press 4 to exit:

Select Options: 2

Saved the result in result.csv

Press 1 to display class result:

Press 2 To generate class result in csv:

Press 3 for displaying student info:

Press 4 to exit:

Select Options: 3

Enter Student Roll Number: 210286

Student Not Found!

Press 1 to display class result:

Press 2 To generate class result in csv:

Press 3 for displaying student info:

Press 4 to exit:

Select Options: 4

Exiting..

```
[40]: #A Better Representation of Data
df1
```

[40]:	Roll Number	Names	Lab Performance	Lab Report \
0	210319	Muhammad Ammar Bajwa	12.095238	14.190476
1	210323	Waleed Hussain	12.571429	11.619048
2	210325	Shahzaib Malik	15.523810	13.809524
3	210327	Muhammad Tayyab Saddiq	10.190476	12.095238
4	210331	Hadia Zainab Raza	12.000000	6.952381
5	210335	Syeda Imtashal Fatima Jaffari	11.238095	10.190476

6	210339	Azlan Muhammad	8.857143	8.952381
7	210341	Abdullah Zahid	14.476190	16.190476
8	210351	Muammar Rehman	10.761905	13.238095
9	210355	Abdullah Khan	11.333333	8.666667
10	210357	Usama Khalid	11.714286	15.619048
11	210359	Muhammad Kazim	12.571429	14.761905
12	210363	Muhammad Talha	11.142857	6.095238
13	210365	Muhammad Usman	14.190476	13.809524
14	210369	Mudassar Zahoore	15.523810	10.476190
15	210371	Abdul Baasit	15.809524	11.714286
16	210373	Taha Khalid	10.476190	12.190476
17	210377	Abdullah Zulfiqar	11.428571	12.380952
18	210379	Usama Zulfiqar	12.571429	13.523810
19	210381	Ahmad Mahtab Cheema	12.285714	15.619048
20	210383	Adnan Bashir	10.285714	13.904762
21	211986	Shaoib ul Hassan	11.809524	12.857143
22	211988	Muhammad Ali Khan	11.523810	12.666667

	Mid Term	Final Term	CEA	Total	Grade
0	15.454545	15.6	7.0	64.340260	D
1	12.363636	7.6	15.0	59.154113	E
2	11.090909	15.2	20.0	75.624242	C
3	8.181818	12.4	14.0	56.867532	E
4	10.727273	5.2	16.0	50.879654	E
5	10.181818	10.0	2.0	43.610390	F
6	8.363636	17.6	14.0	57.773160	E
7	12.545455	9.6	3.0	55.812121	E
8	9.636364	12.4	4.0	50.036364	E
9	5.272727	5.6	18.0	48.872727	F
10	8.727273	8.8	7.0	51.860606	E
11	12.000000	17.6	7.0	63.933333	D
12	2.909091	18.8	19.0	57.947186	E
13	10.181818	0.4	13.0	51.581818	E
14	14.363636	13.6	0.0	53.963636	E
15	10.909091	7.2	15.0	60.632900	D
16	11.272727	13.6	4.0	51.539394	E
17	10.363636	12.8	1.0	47.973160	F
18	10.363636	9.6	3.0	49.058874	F
19	12.545455	16.0	4.0	60.450216	D
20	6.909091	2.4	18.0	51.499567	E
21	11.272727	9.6	16.0	61.539394	D
22	4.727273	19.6	19.0	67.517749	D