ITW Python End Sem Assignment

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Problem 1:

Task: (use numpy, matplotlib, scikit)

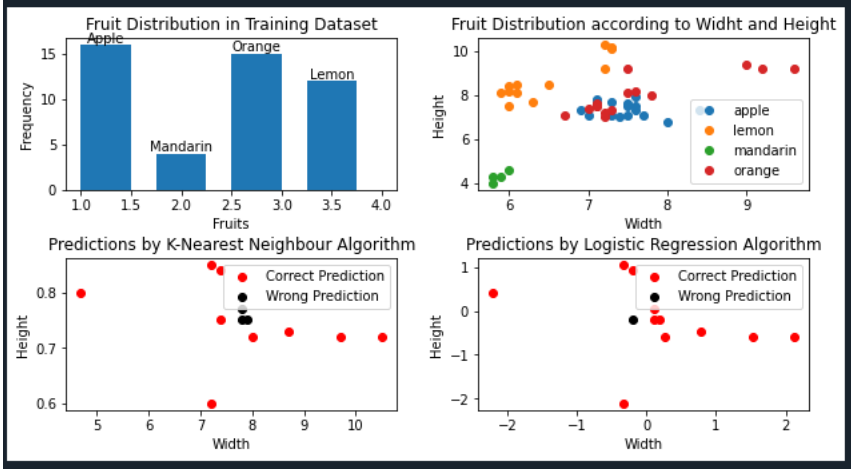
(a)We have to train a classifier to distinguish between different types of fruits using K - Nearest Neighbour and Logistic Regression (use link https://scikit-learn.org/stable/).

(b)Present in both of them which algorithm works better.

(c)Visualize the training data and classified data using matplotlib.

Dataset: Using a simple dataset (Problem1.txt). This dataset contains fruit_label, fruit_name, fruit_subtype, mass, width, height, color_score.

```
In [3]: runfile('/home/swetasingh/Q1/py_project_q1.py', wdir='/home/swetasingh/Q1')

Taking random Sample Data for prediction:  [[5, 4.5, 2]]

The Test Accuracy for K-Nearest Neighbour : 75.0%
Predictions by KNN Algorithm: FruitName=['apple'] Subtype=['granny_smith']

The Test Accuracy for Logistic Regression : 91.66666666666666%
Predictions by LR Algorithm: FruitName=['mandarin'] Subtype=['mandarin']

LR Algorithm had better Accuracy
```




```
In [4]:
```

Problem 2:

Task: (use numpy, matplotlib, scikit)

(a)We have to predict whether the patient has diabetes or not based on various features given

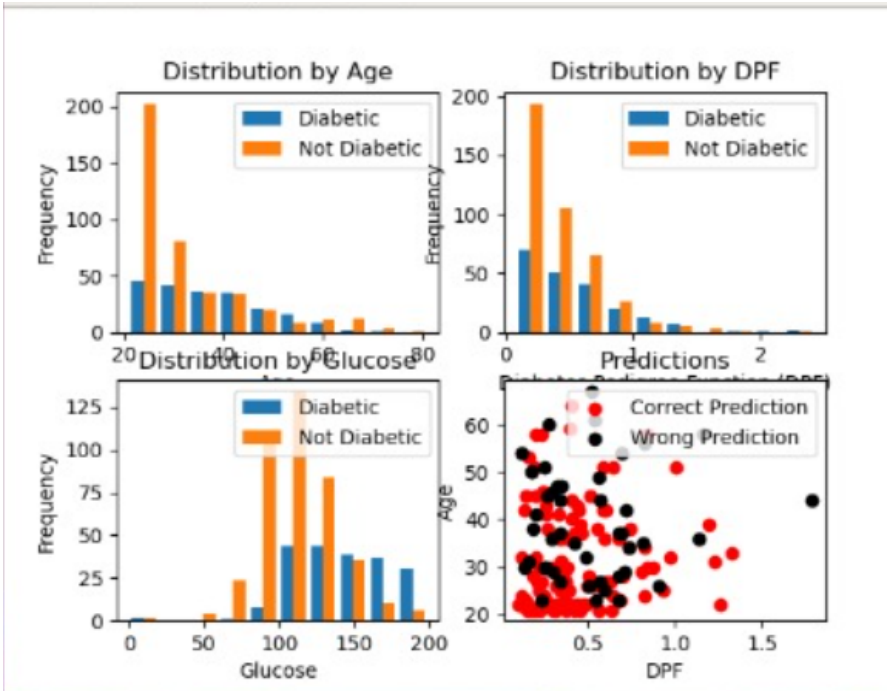
in the dataset .

(b) Visualize the training data and classified data using matplotlib.

Dataset: Using a simple dataset (Problem2.txt).This dataset contains Pregnancies, Glucose,

BloodPressure, SkinThickness, Insulin, BMI, DiabetesPedigreeFunction, Age, Outcome.

```
In [3]: runfile('/home/swetasingh/Q1/py_project_q2.py', wdir='/home/swetasingh/Q1')
The Test Accuracy for K-Nearest Neighbour : 70.12987012987013%

Taking random Sample Data for prediction:  [[5, 132, 80, 0, 0, 26.8, 0.186, 42]]

Predictions: Not Diabetic
```



Problem 3:

Task: Menu Calculator (Use Basic Python- no need to use GUI interface)

Case: Imagine you have started up a small restaurant and are trying to make it easier to take

and calculate orders. Since your restaurant only sells 5 different items, you assign each one to a

number, as shown below.

1. Chicken Strips - $3.50

2. French Fries - $2.50

3. Hamburger - $4.00

4. Hotdog - $3.50

5. Large Drink - $1.75

6. Medium Drink - $1.50

7. Milk Shake - $2.25

8. Salad - $3.75

9. Small Drink - $1.25

To quickly take orders, your program should allow the user to type in a string of numbers and

then it should calculate the cost of the order.

```
In [9]: runfile('/home/swetasingh/Q1/py_project_q3.py', wdir='/home/swetasingh/Q1')
MENU CALCULATOR

MENU CARD

1. Chicken Strips - $3.5
2. French Fries - $2.5
3. Hamburger - $4.0
4. Hotdog - $3.5
5. Large Drink - $1.75
6. Medium Drink - $1.5
7. Milk Shake - $2.25
8. Salad - $3.75
9. Small Drink - $1.25

Enter exit to terminate.


Enter your order: 4
ITEMS ORDERED
Hotdog : 1

Total Cost : $3.5

Hope you enjoyed our services...

Press enter to continue:
```

```
In [23]: runfile('/home/swetasingh/Q1/py_project_q3.py', wdir='/home/swetasingh/Q1')
MENU CALCULATOR

MENU CARD

1. Chicken Strips - $3.5
2. French Fries - $2.5
3. Hamburger - $4.0
4. Hotdog - $3.5
5. Large Drink - $1.75
6. Medium Drink - $1.5
7. Milk Shake - $2.25
8. Salad - $3.75
9. Small Drink - $1.25

Enter exit to terminate.


Enter your order: 2344456
ITEMS ORDERED
French Fries : 1
Hamburger : 1
Hotdog : 3
Large Drink : 1
Medium Drink : 1

Total Cost : $20.25

Hope you enjoyed our services...

Press enter to continue:
```

Error checking:

```
In [11]: runfile('/home/swetasingh/Q1/py_project_q3.py', wdir='/home/swetasingh/Q1')
MENU CALCULATOR

MENU CARD

1. Chicken Strips - $3.5
2. French Fries - $2.5
3. Hamburger - $4.0
4. Hotdog - $3.5
5. Large Drink - $1.75
6. Medium Drink - $1.5
7. Milk Shake - $2.25
8. Salad - $3.75
9. Small Drink - $1.25

Enter exit to terminate.


Enter your order: 0123
Few items ordered are not present in our menu.


Press enter to continue:
```

Problem 4:

Task: Create an small address book (Use Basic Python- no need to use GUI interface))

Case: Write an address book program in python which have the following option:

1. Add_contact

2. Display_contact

3. Delete_contact

4. Modify_contact

5. Seach_contact

And each option contain:

Add_contact:

Take input Contact_name, Contact_email, Contact_phone.

Stored in pickle file.

Display_contact:

If the file is not empty then Display all contact .

else print "No contact in address book".

Search_contact:

Take the input name of the contact to be deleted.

If contact exists then search the contact content,

if contact found display it,

else print error message.

Modify_contact:

Take the input name of the contact to be modified.

If contact exists then it modifies the contact content.

After modification print the "Contact modified",

if contact is not found in file then print message "No contact with this name found",

If the contact book is empty then print message "Address book empty. No contact to delete"

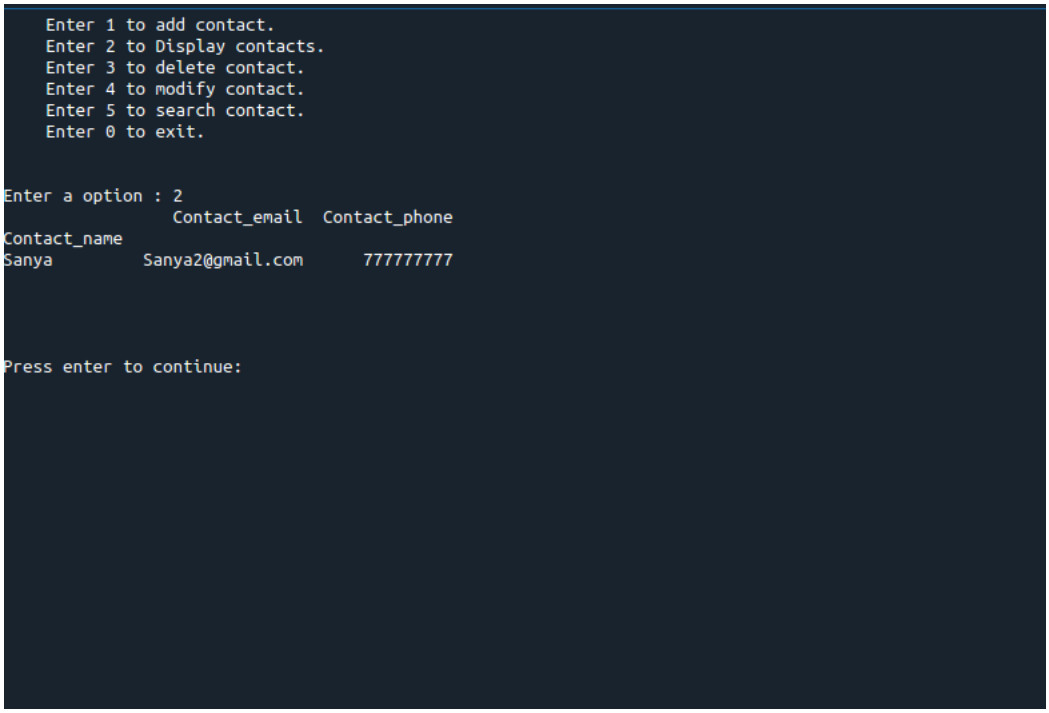
Delete_contact:

```
In [19]: runfile('/home/swetasingh/Q1/py_project_q4.py', wdir='/home/swetasingh/Q1')
Welcome to Address Book.

    Enter 1 to add contact.
    Enter 2 to Display contacts.
    Enter 3 to delete contact.
    Enter 4 to modify contact.
    Enter 5 to search contact.
    Enter 0 to exit.


Enter a option : 2
                    Contact_email  Contact_phone
Contact_name
sweta singh   swetasingh@gmail.com     9999999999



Press enter to continue:
```

```
Enter a option : 4

Enter contact name to be modified : sweta singh

Enter Contact New Name : Sweta

Enter Contact New Email I'd : Sweta24@gmail.com

Enter Contact New Phone no. : 8888888888
Contact Details Successfully Modified !



Press enter to continue:
```

```
Enter a option : 1
Enter the contact details.

Enter Contact Name : Sanya

Enter Contact Email I'd : Sanya2@gmail.com

Enter Contact Phone no. : 777777777
Contact Successfully Created !



Press enter to continue:
```

```
In [20]: runfile('/home/swetasingh/Q1/py_project_q4.py', wdir='/home/swetasingh/Q1')
Welcome to Address Book.

    Enter 1 to add contact.
    Enter 2 to Display contacts.
    Enter 3 to delete contact.
    Enter 4 to modify contact.
    Enter 5 to search contact.
    Enter 0 to exit.


Enter a option : 3

Enter contact name to be deleted : Sweta

Contact successfully deleted.



Press enter to continue:
```


Enter 1 to add contact.
Enter 2 to Display contacts.
Enter 3 to delete contact.
Enter 4 to modify contact.
Enter 5 to search contact.
Enter 0 to exit.
Enter a option : 2
Contact_email Contact_phone
Contact_name
Sanya Sanya2@gmail.com 777777777
Press enter to continue:

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