Karanjot Singh

In [63]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.metrics import accuracy_score
from sklearn.metrics import confusion_matrix
from sklearn.linear_model import LogisticRegression
from sklearn.preprocessing import LabelEncoder
from sklearn.model_selection import train_test_split
from sklearn.model_selection import StratifiedKFold
from sklearn.model_selection import cross_val_score
from sklearn import model_selection
from tkinter import *
import tkinter
from PIL import ImageTk,Image
import warnings
warnings.filterwarnings("ignore")
```

In [64]:

```
data = pd.read_csv("diabetes.csv")
data.head()
```

Out[64]:

	Pregnancies	Glucose	BloodPressure	SkinThickness	Insulin	BMI	DiabetesPedigreeFunc
0	6	148	72	35	0	33.6	0.
1	1	85	66	29	0	26.6	0.
2	8	183	64	0	0	23.3	0.
3	1	89	66	23	94	28.1	0.
4	0	137	40	35	168	43.1	2.

In [65]:

```
data.shape
```

Out[65]:

```
(768, 9)
```

In [66]:

```
data.describe()
```

Out[66]:

	Pregnancies	Glucose	BloodPressure	SkinThickness	Insulin	BMI	Diab
count	768.000000	768.000000	768.000000	768.000000	768.000000	768.000000	
mean	3.845052	120.894531	69.105469	20.536458	79.799479	31.992578	
std	3.369578	31.972618	19.355807	15.952218	115.244002	7.884160	
min	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	1.000000	99.000000	62.000000	0.000000	0.000000	27.300000	
50%	3.000000	117.000000	72.000000	23.000000	30.500000	32.000000	
75%	6.000000	140.250000	80.000000	32.000000	127.250000	36.600000	
max	17.000000	199.000000	122.000000	99.000000	846.000000	67.100000	

In [67]:

```
y = data.Outcome
x = data.drop('Outcome',axis = 1)
x_train,x_test,y_train,y_test = train_test_split(x,y,test_size = 0.3)
lr = LogisticRegression()
lr.fit(x_train,y_train)
k = lr.score(x_test,y_test)*100
print(k)
y_pred = lr.predict(x_test)
#print(y_pred)
#mat1= confusion_matrix(y_pred,y_test)
#print(mat1)
```

```
76.62337662337663
```

In [68]:

```
kf = model_selection.KFold(n_splits=4)
kf.get_n_splits(X)
print(kf)
for train_index, test_index in kf.split(x):
    #print("TRAIN:", train_index, "TEST:", test_index)
    x_train, x_test = x.loc[train_index], x.loc[test_index]
    y_train, y_test = y.loc[train_index], y.loc[test_index]
cross_score = cross_val_score(LogisticRegression(),x,y,cv = kf).mean()
f = cross_score*100
print(f)
```

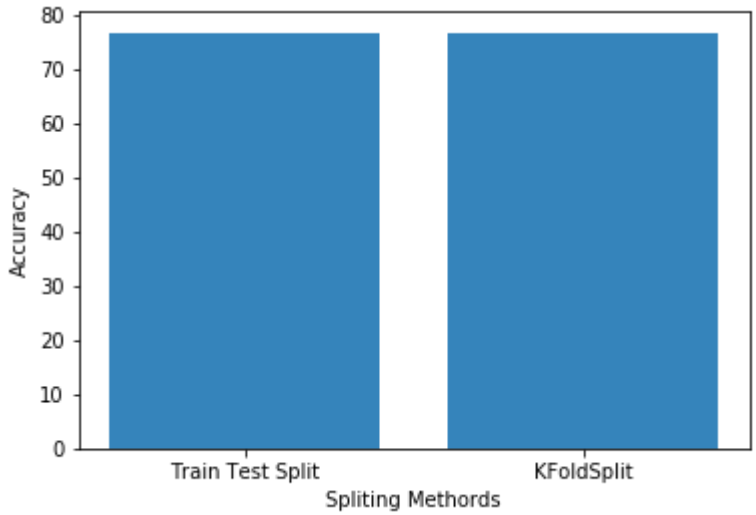
```
KFold(n_splits=4, random_state=None, shuffle=False)
76.82291666666667
```

In [69]:

```
l = list([k,f])
lables = ['Train Test Split','KFoldSplit']
plt.bar(lables,l,align='center',alpha = 0.9)
plt.xlabel("Spliting Methords")
plt.ylabel("Accuracy")
```

Out[69]:

```
Text(0, 0.5, 'Accuracy')
```



In [70]:

```
test_data = [8,197,74,0,0,25.9,1.191,39]
output = lr.predict([test_data])
print(output)
```

```
[1]
```

In [71]:

```
from tkinter import messagebox
try:
    import Tkinter as tk
except ImportError:
    import tkinter as tk

def data_predict(l):
    return lr.predict(l)
def onClick(l):
    result = data_predict(l)
    if result == 1:
        messagebox.showinfo("Diabetic Test","Yes ,The patient is Diabetic!!!")
    elif result == 0:
        messagebox.showinfo("Diabetic Test","No ,The patient is NOT Diabetic!!!")
    else:
        messagebox.showinfo("Diabetic Test","Information incorrect!!!")
def tolist():
    l = list([str(textbox1.get()),str(textbox2.get()),str(textbox3.get()),str(textbox4.
get()),str(textbox5.get()),str(textbox6.get()),str(textbox7.get()),str(textbox8.get
())])
    l = [[float(x) for x in l]]
    onClick(l)
main = Tk()
photo = PhotoImage(file = "diabetes1.png")
w = Label(main, image=photo).pack()
main.title("Diabetics Analsys and Pridiction")
main.geometry("505x336+0+0")

Label(main,text = 'Pregnancies').place(x = 100,y=20)
textbox1 = StringVar()
l1 = Entry(main,textvariable = textbox1).place(x = 250,y=20)

Label(main,text = 'Glucose').place(x = 100,y=50)
textbox2 = StringVar()
l2 = Entry(main,textvariable = textbox2).place(x = 250,y=50)

Label(main,text = 'Blood Pressure').place(x = 100,y=80)
textbox3 = StringVar()
l3 = Entry(main,textvariable = textbox3).place(x = 250,y=80)

Label(main,text = 'Skin Thickness').place(x = 100,y=110)
textbox4 = StringVar()
l4 = Entry(main,textvariable = textbox4).place(x = 250,y=110)

Label(main,text = 'Insulin').place(x = 100,y=140)
textbox5 = StringVar()
l5 = Entry(main,textvariable = textbox5).place(x = 250,y=140)

Label(main,text = 'BMI').place(x = 100,y=170)
textbox6 = StringVar()
l6 = Entry(main,textvariable = textbox6).place(x = 250,y=170)

Label(main,text = 'Diabetes Pedigree Funtion').place(x = 100,y=200)
textbox7 = StringVar()
l7 = Entry(main,textvariable = textbox7).place(x = 250,y=200)

Label(main,text = 'Age').place(x = 100,y=230)
textbox8 = StringVar()
l8 = Entry(main,textvariable = textbox8).place(x = 250,y=230)
```

```
#print(l)

resul = Button(main,text = "Show Result",command = tolist).place(x = 220,y = 280)
#result.pack()
main.mainloop()
```