In [1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.model_selection import train_test_split
from sklearn.metrics import accuracy_score,classification_report
from sklearn.naive_bayes import GaussianNB
```

In [2]:
```
df=pd.read_csv('Naive-Bayes-Classification medical-Data.csv')
```

In [3]:
```
df.head(5)
```

Out[3]:

	glucose	bloodpressure	diabetes
0	40	85	0
1	40	92	0
2	45	63	1
3	45	80	0
4	40	73	1

In [4]:
```
df.isnull().sum()
```

Out[4]:
```
glucose          0
bloodpressure    0
diabetes         0
dtype: int64
```

In [5]:
```
df.shape
```

Out[5]:
```
(995, 3)
```

In [6]:
```
X=df.drop('diabetes',axis=1)
```

In [7]:
```
X
```

Out[7]:

	glucose	bloodpressure
0	40	85
1	40	92
2	45	63
3	45	80
4	40	73
...	...	...
990	45	87
991	40	83
992	40	83
993	40	60
994	45	82

995 rows × 2 columns

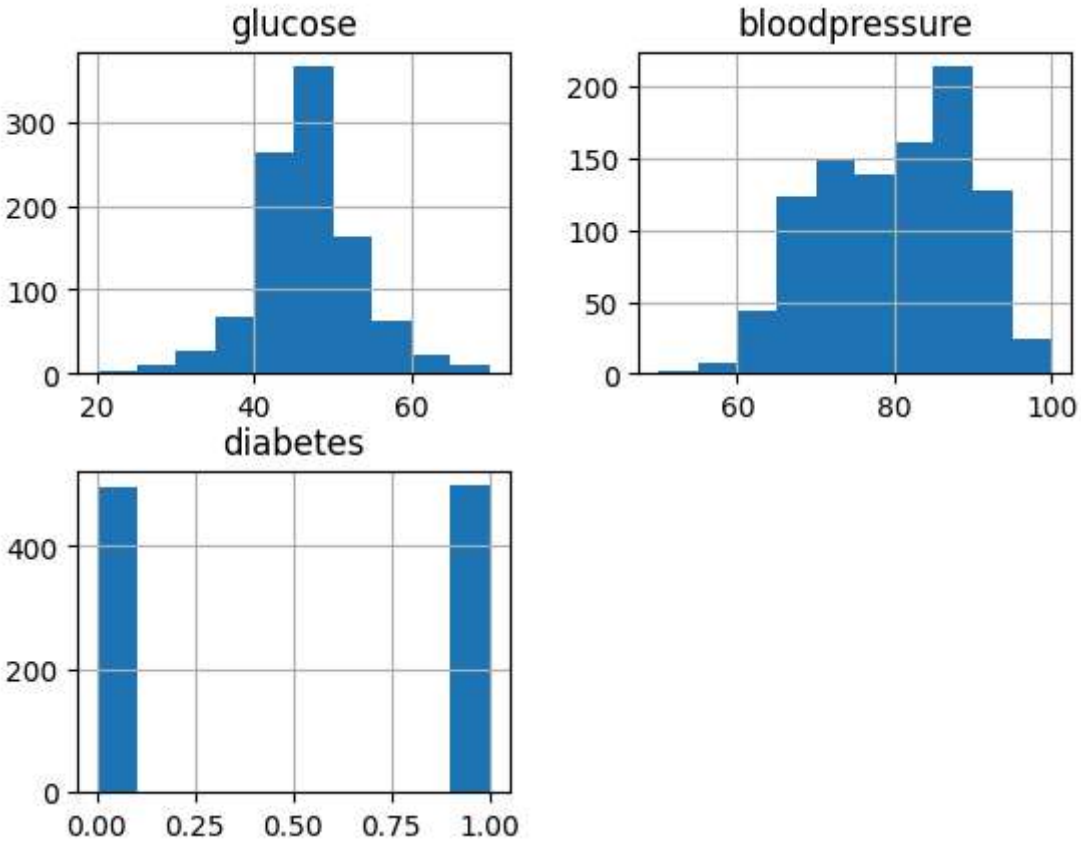
In [8]:
```
y=df['diabetes']
```

In [9]:
```
y
```

Out[9]:
```
0      0
1      0
2      1
3      0
4      1
      ..
990    0
991    0
992    0
993    1
994    0
Name: diabetes, Length: 995, dtype: int64
```

In [10]:
```
df.hist()
```

Out[10]:
```
array([[<Axes: title={'center': 'glucose'}>,
        <Axes: title={'center': 'bloodpressure'}>],
       [<Axes: title={'center': 'diabetes'}>, <Axes: >]], dtype=object)
```



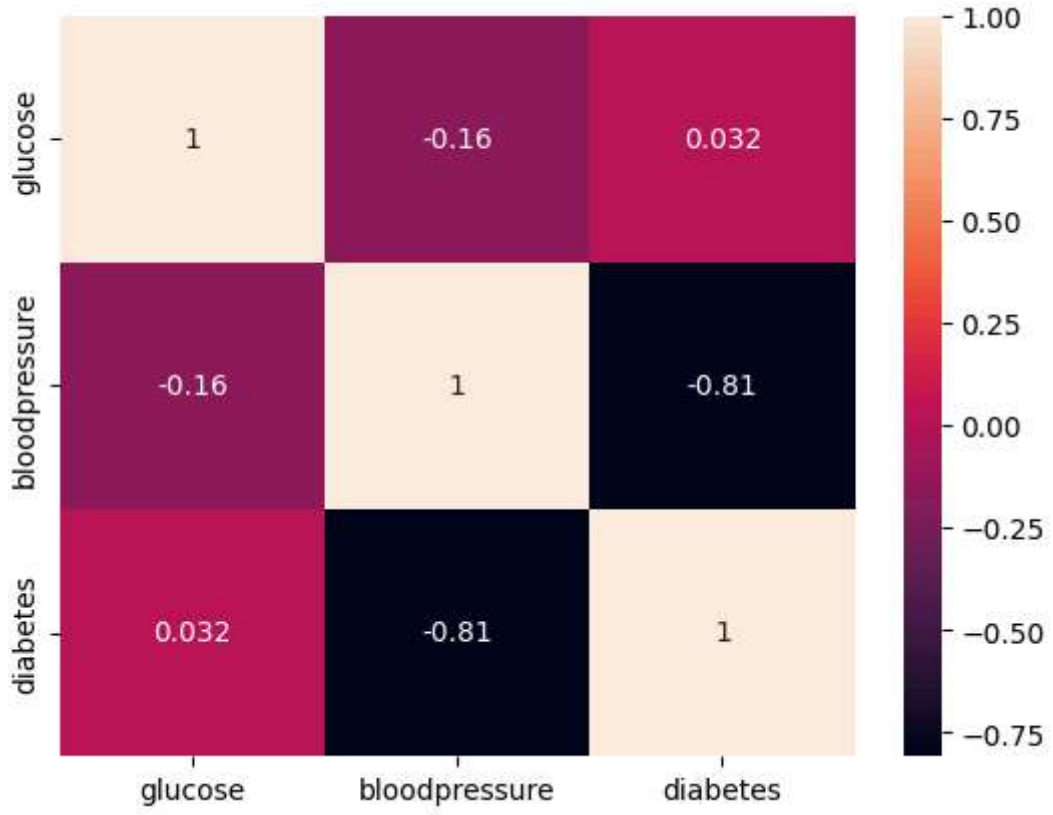
In [11]:
```
df.corr()
```

Out[11]:

	glucose	bloodpressure	diabetes
glucose	1.000000	-0.164553	0.031585
bloodpressure	-0.164553	1.000000	-0.808303
diabetes	0.031585	-0.808303	1.000000

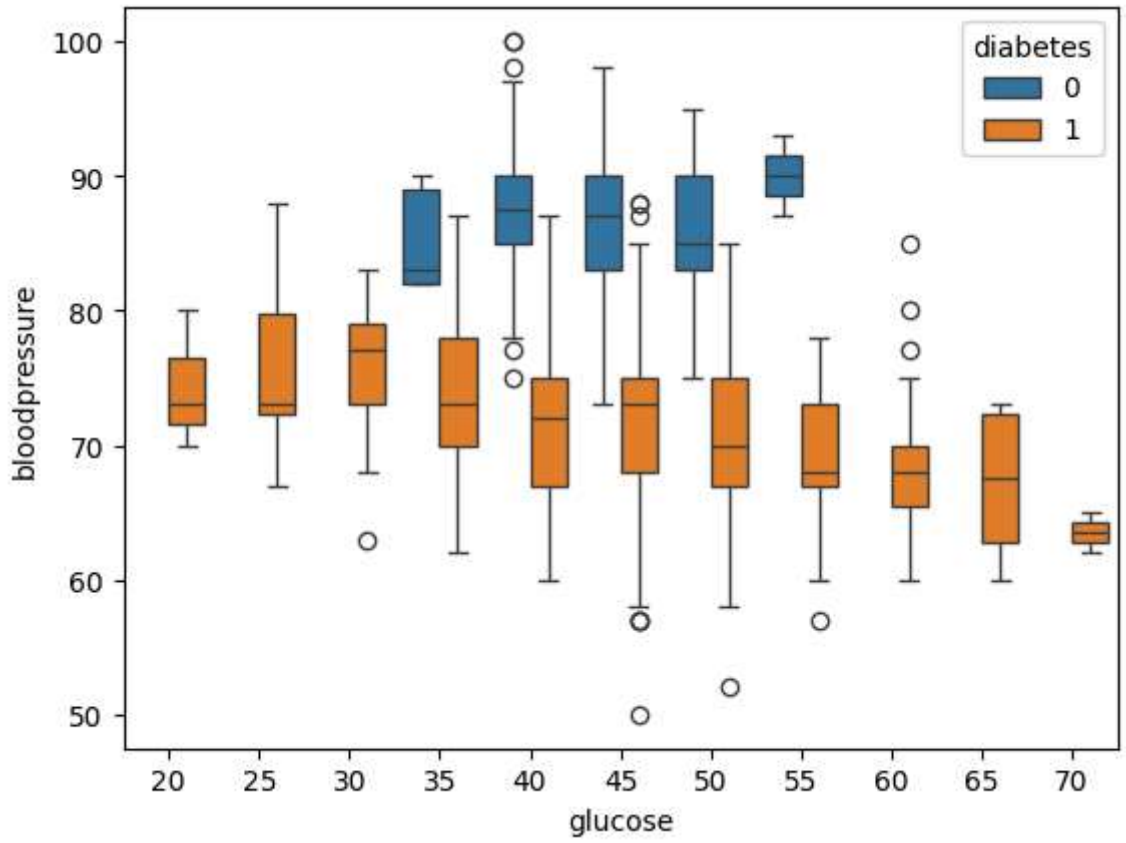
In [12]:
```
sns.heatmap(df.corr(),annot=True)
```

Out[12]: <Axes: >



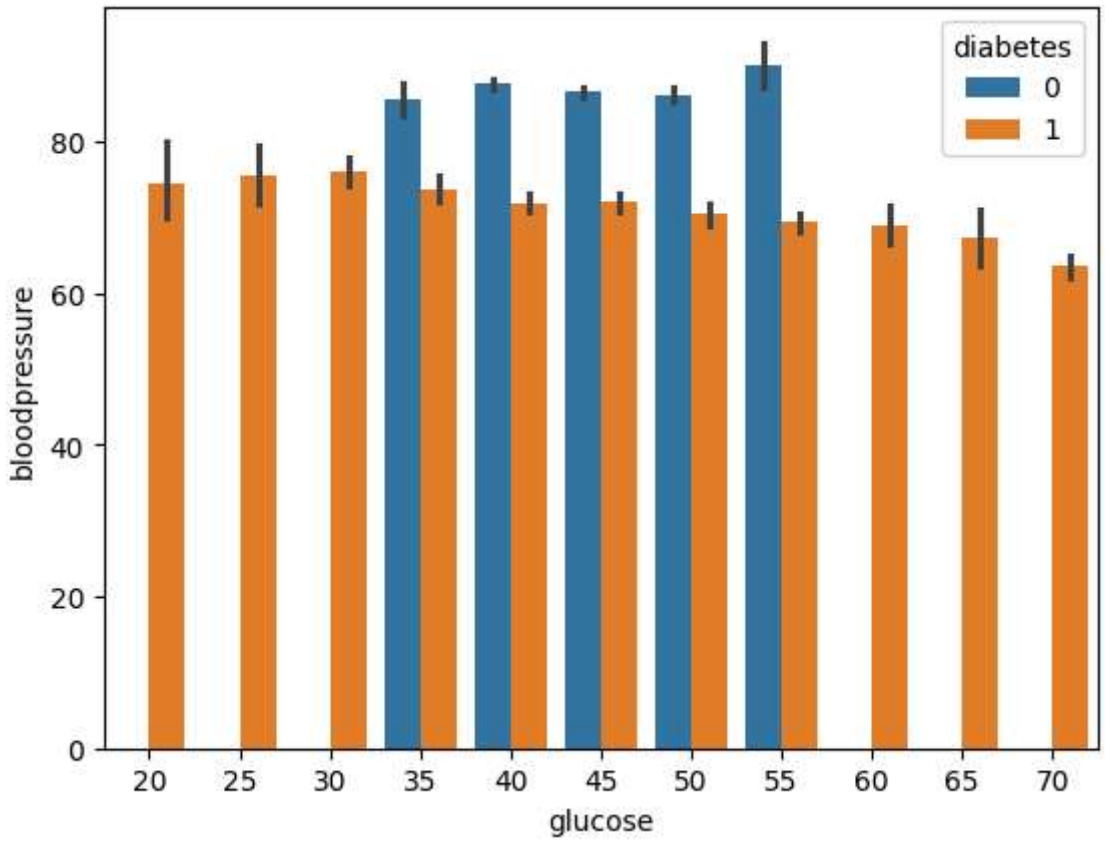
In [13]:
```
sns.boxplot(x='glucose',y='bloodpressure',hue='diabetes',data=df)
```

Out[13]: <Axes: xlabel='glucose', ylabel='bloodpressure'>



In [14]:
```
sns.barplot(x='glucose',y='bloodpressure',hue='diabetes',data=df)
```

Out[14]:
```
<Axes: xlabel='glucose', ylabel='bloodpressure'>
```



In [15]:
```
X_train,X_test,y_train,y_test=train_test_split(X,y,test_size=0.2,random_state=42)
```

In [16]:
```
nb_classifier=GaussianNB()
```

In [17]:
```
nb_classifier.fit(X_train,y_train)
```

Out[17]:
```
GaussianNB()
```

In [18]:
```
y_pred=nb_classifier.predict(X_test)
```

In [19]:
```
accuracy=accuracy_score(y_test,y_pred)
print('Accuracy:',accuracy)
```

```
Accuracy: 0.9296482412060302
```

In [20]:
```
classification_report=classification_report(y_test,y_pred)
print('Classification_report:',classification_report)
```

```
Classification_report:               precision    recall  f1-score   support

           0       0.92      0.92      0.92        93
           1       0.93      0.93      0.93       106

    accuracy                           0.93       199
   macro avg       0.93      0.93      0.93       199
weighted avg       0.93      0.93      0.93       199
```

In [21]:
```
#Prediction
y_pred
```

Out[21]:
```
array([1, 1, 1, 0, 0, 0, 1, 0, 0, 1, 0, 0, 0, 0, 0, 1, 1, 1, 1, 0, 0, 1,
       1, 0, 0, 0, 1, 1, 0, 0, 0, 1, 0, 1, 0, 1, 1, 0, 0, 0, 1, 0, 0, 0,
       0, 0, 1, 1, 1, 1, 0, 1, 0, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 0, 1,
       1, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 1,
       0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 0, 0, 1, 1, 0, 1, 0,
       1, 0, 1, 0, 0, 1, 0, 0, 1, 1, 1, 0, 0, 0, 0, 1, 1, 0, 1, 1, 1, 0,
       0, 0, 1, 1, 1, 1, 0, 1, 1, 0, 1, 1, 1, 1, 0, 0, 1, 1, 0, 1, 0, 0,
       1, 1, 1, 0, 0, 1, 1, 1, 0, 1, 1, 1, 0, 0, 1, 1, 1, 0, 1, 0, 0, 1,
       0, 1, 1, 1, 1, 1, 0, 0, 0, 1, 1, 1, 0, 1, 1, 1, 1, 0, 0, 1, 0, 0,
       0])
```

In [56]:
```
sns.countplot(x=y_pred, palette=['red', 'blue'])
plt.title('Predicted Diabetes Class Distribution')
plt.xlabel('Predicted Class')
plt.ylabel('Count')
plt.xticks([0, 1], ['No Diabetes', 'Diabetes'])
plt.show()
```

```
C:\Users\KAUSHIK\AppData\Local\Temp\ipykernel_13152\2639116456.py:1: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `x` variable to `h
ue` and set `legend=False` for the same effect.

  sns.countplot(x=y_pred, palette=['red', 'blue'])
```