In [23]:

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
```

In [24]:

```
train=pd.read_csv('train.csv')
test = pd.read_csv('test.csv')
```

In [25]:

```
x= train.iloc[:,1:].values
y= train.iloc[:,0].values
```

In [26]:

```
x.shape
```

Out[26]:

```
(42000, 784)
```

In [28]:

```
y[8999]
```

Out[28]:

```
9
```

In [29]:

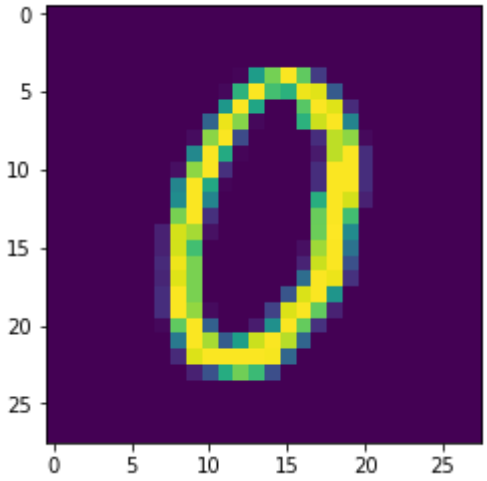
```
var= x[5].reshape(28,28)
```

In [30]:

```
plt.imshow(var)
```

Out[30]:

```
<matplotlib.image.AxesImage at 0x21309d6a748>
```



In [31]:

```
np.where(y==9)
```

Out[31]:

```
(array([   11,    27,    28, ..., 41975, 41992, 41999], dtype=int64),)
```

In [ ]:

```

```

In [ ]:

```

```

In [ ]:

```
```

In [32]:

```
from sklearn.model_selection import train_test_split
x_train , x_test , y_train , y_test = train_test_split(x,y,test_size=0.4,random_state=3)
```

In [33]:

```
from sklearn.svm import SVC
from sklearn.model_selection import GridSearchCV
```

In [35]:

```
model= SVC()
#parameters = {'C':(1,10),'gamma': (1,0.1)}
```

In [36]:

```
#clf = GridSearchCV(model, parameters)
```

In [37]:

```
model.fit(x_train,y_train)
```

```
C:\Users\MACHINE LEARNING\Anaconda3\envs\deepLearning\lib\site-packages\skle
arn\svm\base.py:196: FutureWarning: The default value of gamma will change f
rom 'auto' to 'scale' in version 0.22 to account better for unscaled feature
s. Set gamma explicitly to 'auto' or 'scale' to avoid this warning.
  "avoid this warning.", FutureWarning)
```

Out[37]:

```
SVC(C=1.0, cache_size=200, class_weight=None, coef0=0.0,
  decision_function_shape='ovr', degree=3, gamma='auto_deprecated',
  kernel='rbf', max_iter=-1, probability=False, random_state=None,
  shrinking=True, tol=0.001, verbose=False)
```

In [40]:

```
#clf.best_params_
```

In [ ]:

```
pred= model.predict(x_test)
```

In [ ]:

```
from sklearn.metrics import confusion_matrix , accuracy_score
confusion_matrix(y_test,pred)
```

In [ ]:

```
accuracy_score(y_test,pred)
```