Problem statement- A telecommunications company aims to reduce customer churn by identifying those most likely to leave. Using historical customer behavior data, they want to develop a predictive model that can accurately forecast which customers are at risk of churning.

```
import numpy as np
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.svm import SVC
from sklearn.metrics import accuracy_score,classification_report
```

```
data={'age':[30,25,35,20,20,55,32,28],'Monthlycharge':[50,60,70,45,100,105,120,125],'churn':[0,1,1,0,1,0,1,1]}
```

```
df=pd.DataFrame(data)
```

```
df
```

	age	Monthlycharge	churn
0	30	50	0
1	25	60	1
2	35	70	1
3	20	45	0
4	20	100	1
5	55	105	0
6	32	120	1
7	28	125	1

Next steps: Generate code with df | View recommended plots | New interactive sheet

```
X=df[['age','Monthlycharge']]
y=df['churn']
```

```
X_train,X_test,y_train,y_test=train_test_split(X,y,test_size=0.2,random_state=42)
```

```
svc_model = SVC(kernel='linear', C=1.0) # default regularization
svc_model.fit(X_train,y_train)
```

```
SVC
SVC(kernel='linear')
```

Generate | print hello world using rot13 | Close

```
y_pred=svc_model.predict(X_test)
```

```
accuracy = accuracy_score (y_test,y_pred)
print(accuracy)
```

```
0.0
```

```
report = classification_report (y_test, y_pred)
```

```
print(report)
```

```
              precision    recall  f1-score   support

           0       0.00      0.00      0.00       1.0
           1       0.00      0.00      0.00       1.0

    accuracy                           0.00       2.0
   macro avg       0.00      0.00      0.00       2.0
```

```
     weighted avg       0.00      0.00      0.00       2.0
```

```
user_age = float(input("Enter customer age: "))
user_monthly_charge=float(input("Enter customer monthly charges: "))
user_input = np.array([[user_age, user_monthly_charge]])
prediction = svc_model.predict(user_input)
if prediction[0] == 0:
    print("The customer is likely to stay. ")
else:
    print("The customer is at risk of churning")
```

```
Enter customer age: 32
Enter customer monthly charges: 120
The customer is at risk of churning
/usr/local/lib/python3.10/dist-packages/sklearn/base.py:465: UserWarning: X does not have valid feature names, but SVC was fitted with f
  warnings.warn(
```