In [ ]:
```
import pandas as pd
```

In [ ]:
```
data = pd.read_csv("/content/UCI_Credit_Card.csv")
```

In [ ]:
```
data.head()
```

Out[ ]:

	ID	LIMIT_BAL	SEX	EDUCATION	MARRIAGE	AGE	PAY_0	PAY_2	PAY_3	PAY_
0	1	20000.0	2	2	1	24	2	2	-1	-
1	2	120000.0	2	2	2	26	-1	2	0	
2	3	90000.0	2	2	2	34	0	0	0	
3	4	50000.0	2	2	1	37	0	0	0	
4	5	50000.0	1	2	1	57	-1	0	-1	

5 rows × 25 columns

In [ ]:
```
data.tail()
```

Out[ ]:

	ID	LIMIT_BAL	SEX	EDUCATION	MARRIAGE	AGE	PAY_0	PAY_2	PAY
29995	29996	220000.0	1	3	1	39	0	0	
29996	29997	150000.0	1	3	2	43	-1	-1	
29997	29998	30000.0	1	2	2	37	4	3	
29998	29999	80000.0	1	3	1	41	1	-1	
29999	30000	50000.0	1	2	1	46	0	0	

5 rows × 26 columns

In [ ]:
```
data.isnull().sum()
```

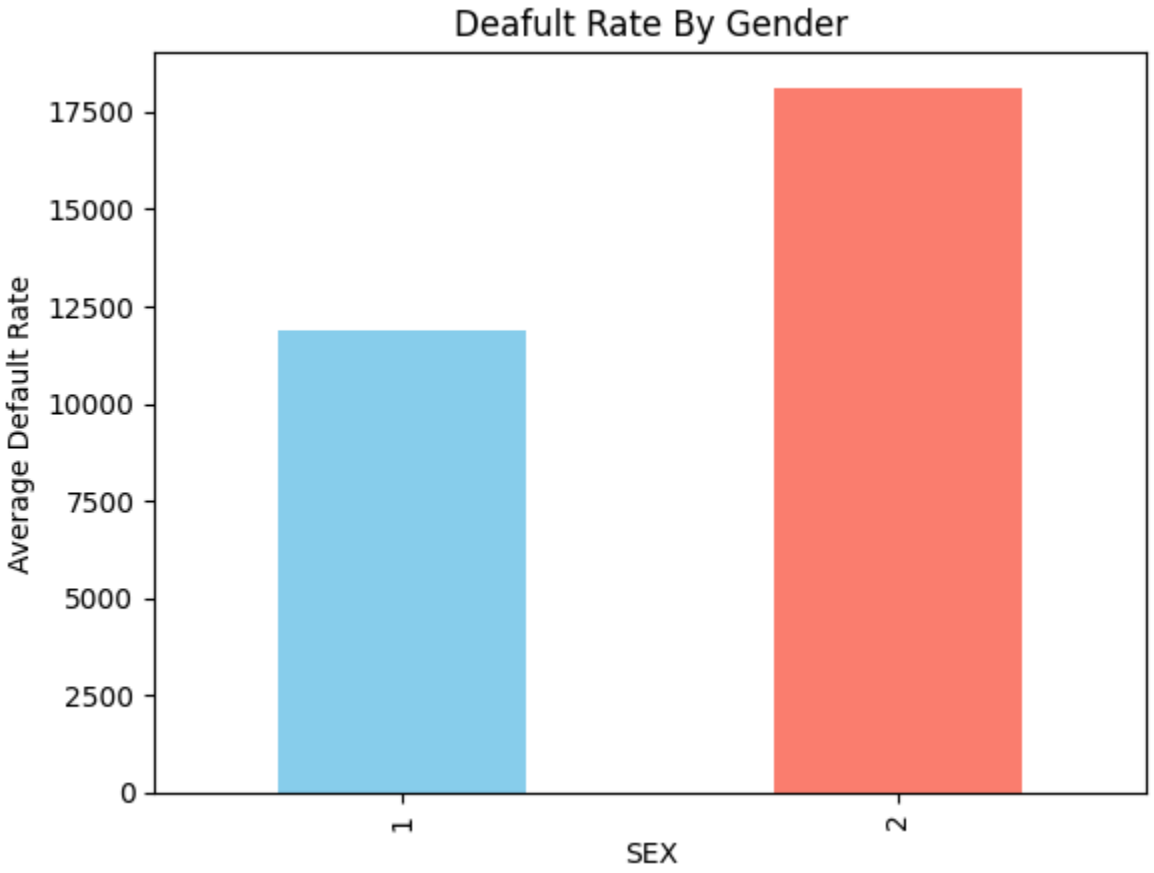
Out[ ]:

	0
ID	0
LIMIT_BAL	0
SEX	0
EDUCATION	0
MARRIAGE	0
AGE	0
PAY_0	0
PAY_2	0
PAY_3	0
PAY_4	0
PAY_5	0
PAY_6	0
BILL_AMT1	0
BILL_AMT2	0
BILL_AMT3	0
BILL_AMT4	0
BILL_AMT5	0
BILL_AMT6	0
PAY_AMT1	0
PAY_AMT2	0
PAY_AMT3	0
PAY_AMT4	0
PAY_AMT5	0
PAY_AMT6	0
default.payment.next.month	0

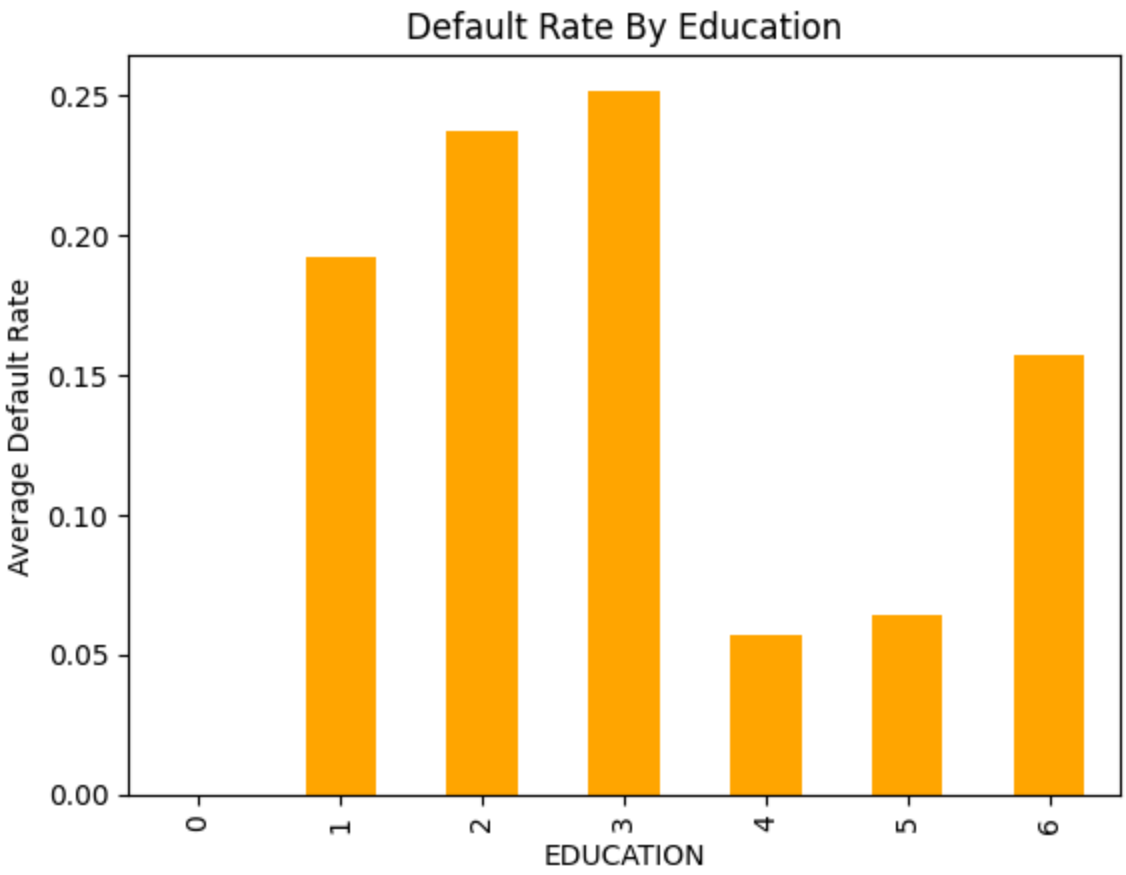
dtype: int64

In [ ]:
```
# group by gender
import matplotlib.pyplot as plt
gender_default =data.groupby("SEX")["default.payment.next.month"].count()

# plot
gender_default.plot(kind = "bar", color=["skyblue","salmon"])
```

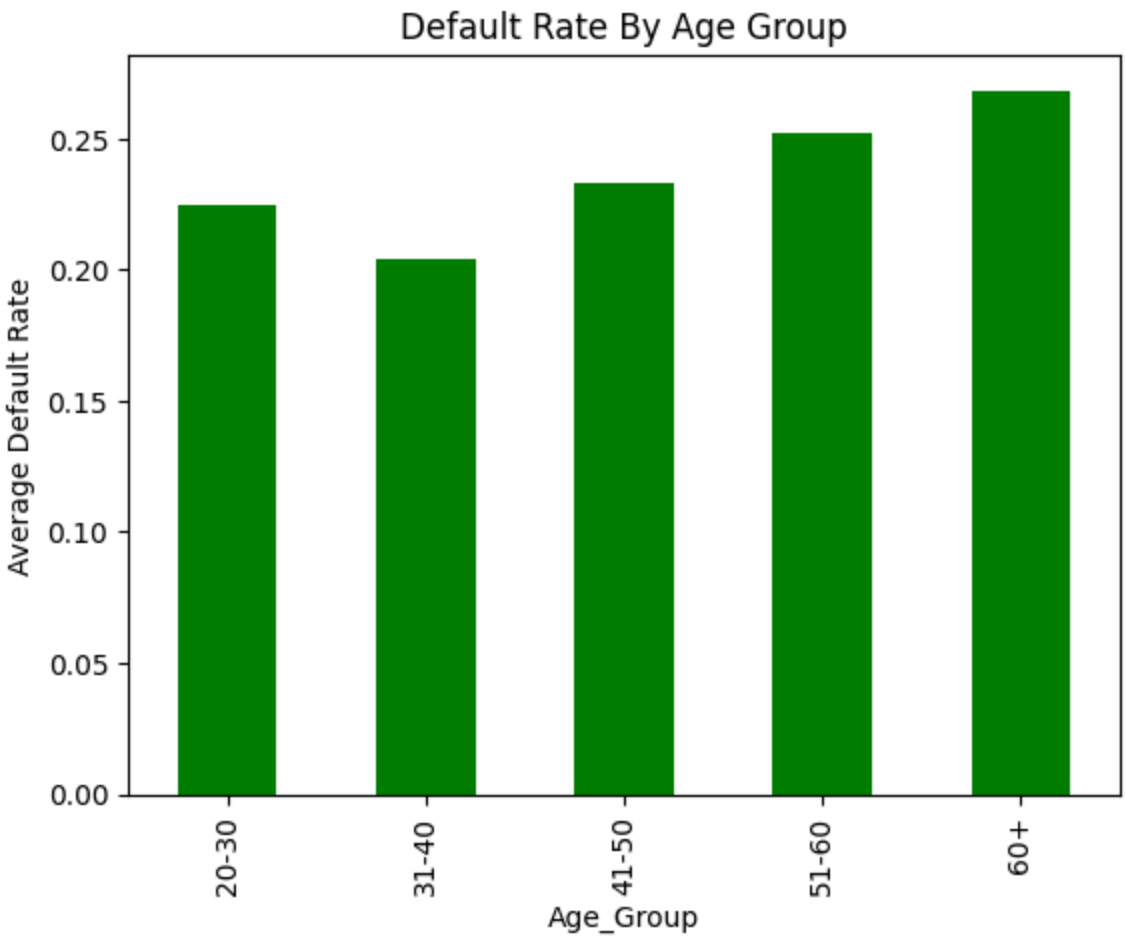
```
plt.title('Deafult Rate By Gender')
plt.ylabel('Average Default Rate')
plt.show()
```



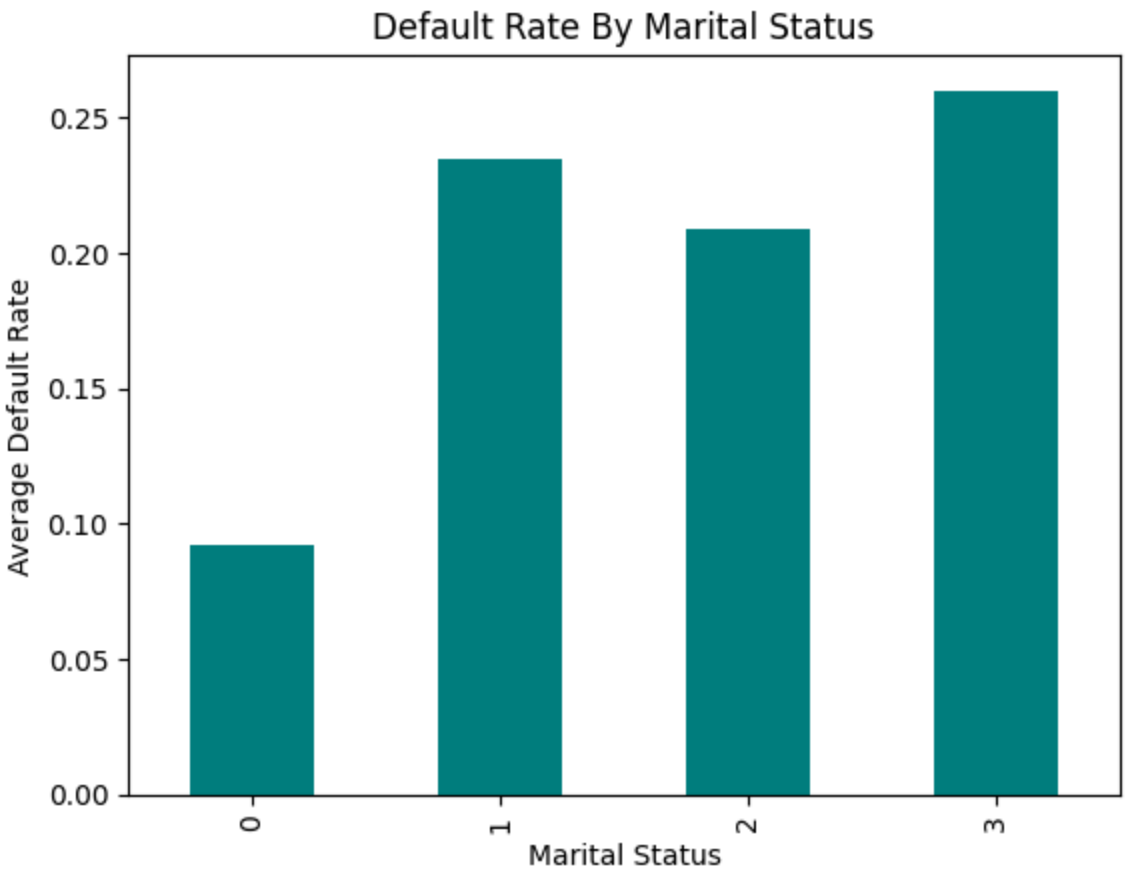
In [ ]:
```
edu_default = data.groupby("EDUCATION")["default.payment.next.month"].mean()

# plot
edu_default.plot(kind = "bar" ,color="orange")
plt.title("Default Rate By Education")
plt.ylabel("Average Default Rate")
plt.show()
```



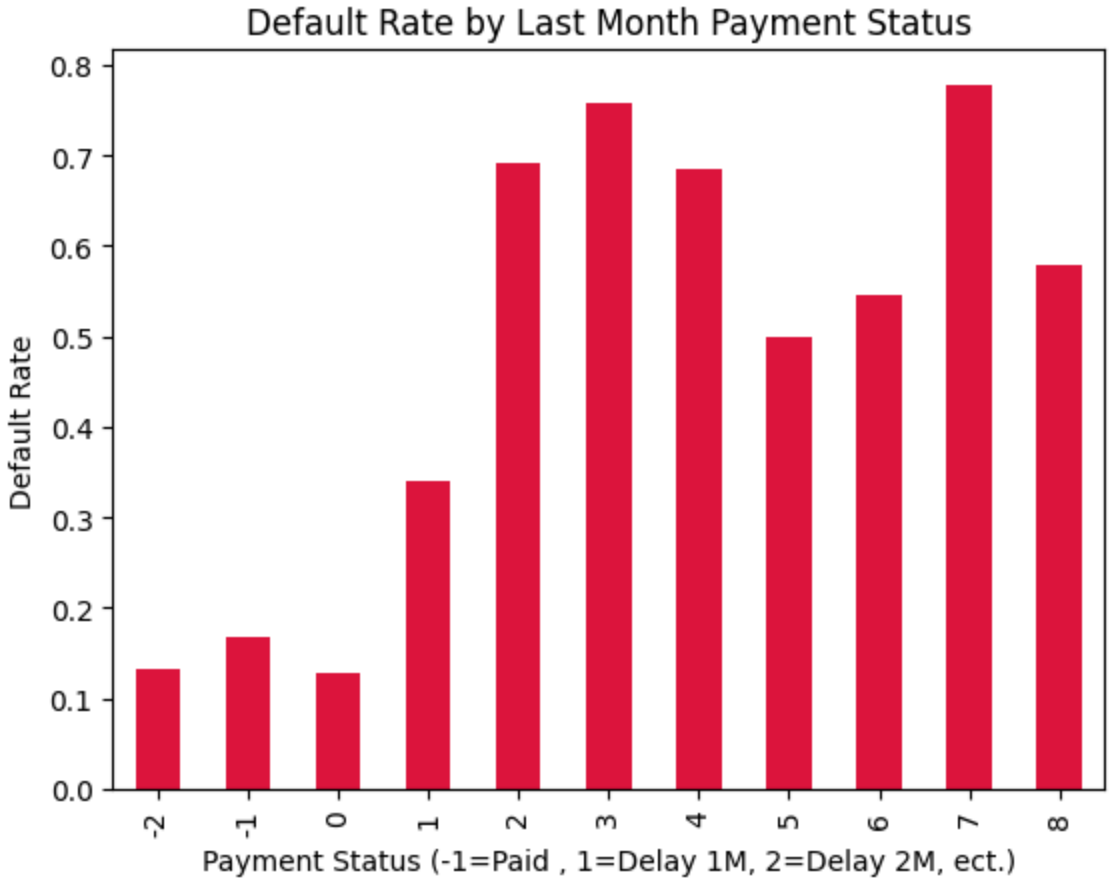
In [ ]:
```python
# create age groups
def age_group(age):
    if age <= 30:
        return "20-30"
    elif age <= 40:
        return "31-40"
    elif age <= 50:
        return "41-50"
    elif age <= 60:
        return "51-60"
    else:
        return "60+"

data["Age_Group"] = data['AGE'].apply(age_group)

# calculate average default rate by age group
age_default = data.groupby('Age_Group')["default.payment.next.month"].mean()

# plot
age_default.plot(kind="bar", color="green")
plt.title("Default Rate By Age Group")
plt.ylabel("Average Default Rate")
plt.show()
```



In [ ]:
```
# Group by Marital Status
marital_default = data.groupby("MARRIAGE")["default.payment.next.month"].mean(
#plot
marital_default.plot(kind = "bar" ,color="teal")
plt.title("Default Rate By Marital Status")
plt.xlabel("Marital Status")
plt.ylabel("Average Default Rate")
plt.show()
```



In [ ]:
```
# Group By repayment status of last month
import matplotlib.pyplot as plt
payment_risk=data.groupby("PAY_0")["default.payment.next.month"].mean()

# plot
payment_risk.plot(kind ="bar" ,color="crimson")
plt.title("Default Rate by Last Month Payment Status")
plt.ylabel("Default Rate")
plt.xlabel("Payment Status (-1=Paid , 1=Delay 1M, 2=Delay 2M, ect.)")
plt.show()
```



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