

```
In [27]: import pandas as pd
import matplotlib.pyplot as plt
```

```
In [28]: #Load CSV

df = pd.read_csv("../data/user_spending.csv")

df.head()
```

```
Out[28]:
```

	age	gender	total_income	utilities_amount	entertainment_amount	school_fees_amount
0	NaN	NaN	NaN	0.0	0.0	0.0
1	38.0	Male	50000.0	1500.0	500.0	500.0
2	37.0	Male	1200.0	200.0	50.0	200.0
3	30.0	Female	10000.0	800.0	100.0	100.0
4	55.0	Male	15000.0	3000.0	500.0	1000.0

Visualization 1 - Ages with the highest income We are computing the average income by age and show top ages

Average total income per age

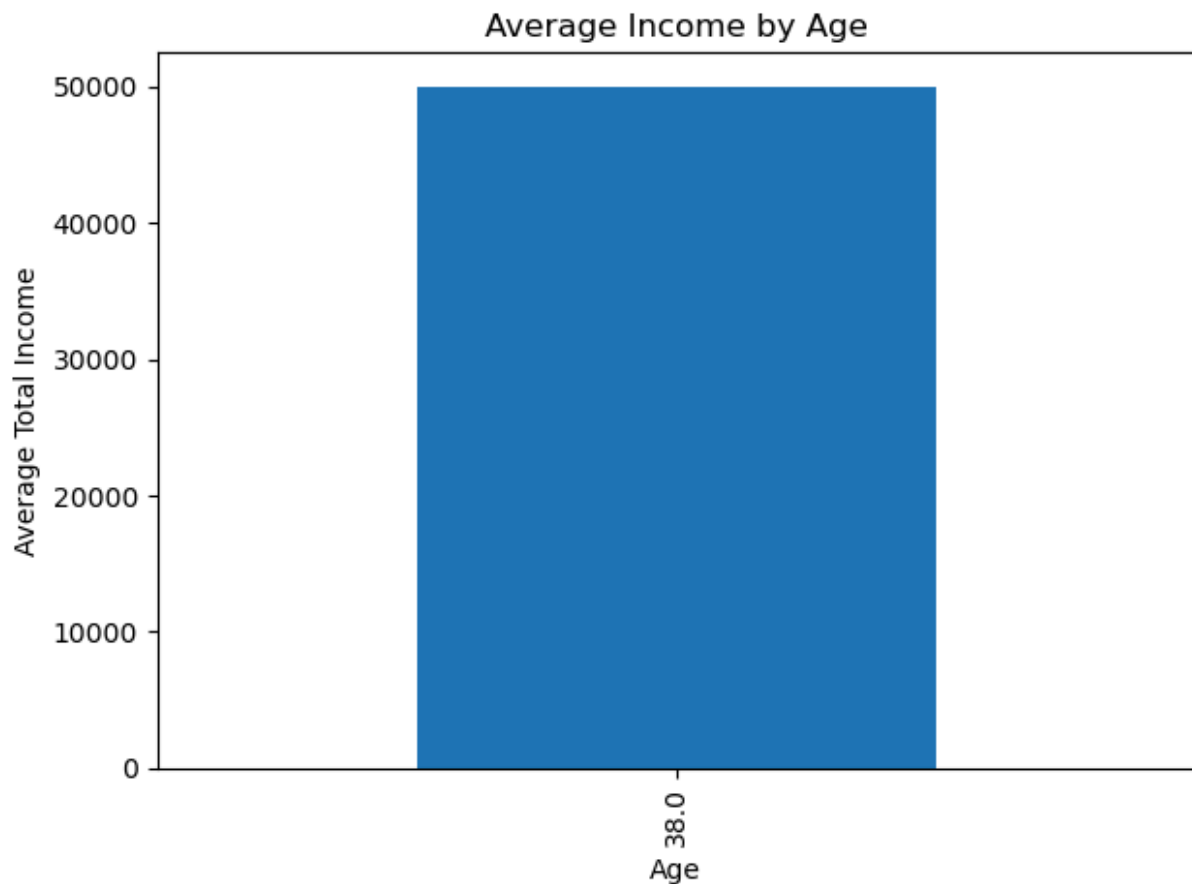
```
age_income = df.groupby("age")["total_income"].mean().sort_values(ascending=False)
```

View top ages

```
age_income.head()
```

Plotting as a bar chart

```
In [29]: plt.figure()
age_income.plot(kind="bar")
plt.xlabel("Age")
plt.ylabel("Average Total Income")
plt.title("Average Income by Age")
plt.tight_layout()
plt.savefig("../data/age_income_chart.png", dpi=300)
plt.show()
```



Visualization 2 – Gender distribution across spending categories We are calculating the average spending per category for each gender:

```
In [30]: expense_cols = [
    "utilities_amount",
    "entertainment_amount",
    "school_fees_amount",
    "shopping_amount",
    "healthcare_amount",
    ]

gender_expenses = df.groupby("gender")[expense_cols].mean()

gender_expenses
```

```
Out[30]:
```

	utilities_amount	entertainment_amount	school_fees_amount	shopping_amount	healthcare_amount
gender					
Female	1150.0	200.0	50.0	1250.0	100.0
Male	1300.0	325.0	475.0	1075.0	100.0
Prefer not to say	200.0	100.0	100.0	75.0	100.0

Plotting a grouped bar chart

```
In [31]: plt.figure()
gender_expenses.T.plot(kind="bar")
plt.xlabel("Expense Category")
plt.ylabel("Average Amount")
plt.title("Average Spending by Gender and Category")
plt.xticks(rotation=45)
plt.tight_layout()
plt.savefig("../data/gender_spending_chart.png", dpi=300)
plt.show()
```

<Figure size 640x480 with 0 Axes>

