Code & Output

At-risk behaviors

Code:

```python
# Julia Cuellar
# DSC 530
# Final project

import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import scipy.stats as stats
import seaborn as sns
import math


def read_file():
    arb = pd.read_csv("At-risk behaviors.csv")
    print(arb.head(5))


def showBar_Date():
    arb = pd.read_csv("At-risk behaviors.csv")
    arb['Date'].value_counts().plot(kind = 'barh').invert_yaxis()
    plt.title('Date')
    plt.show()


def showBar_Week():
    arb = pd.read_csv("At-risk behaviors.csv")
    arb['Week'].value_counts().plot(kind = 'barh').invert_yaxis()
    plt.title('Week')
    plt.show()


def showBar_Shift():
    arb = pd.read_csv("At-risk behaviors.csv")
    arb['Shift'].value_counts().plot(kind = 'barh').invert_yaxis()
    plt.title('Shift')
    plt.show()


def showBar_Arb():
    arb = pd.read_csv("At-risk behaviors.csv")
    arb['At-risk behavior'].value_counts().plot(kind = 'barh').invert_yaxis()
    plt.title('At-risk behavior')
    plt.show()


def showBar_Employment():
    arb = pd.read_csv("At-risk behaviors.csv")
    arb['Employment'].value_counts().plot(kind = 'barh').invert_yaxis()
    plt.title('Employment')
```

```python
        plt.show()


def showBar_JobFunc():
    arb = pd.read_csv("At-risk behaviors.csv")
    arb['Job Function'].value_counts().plot(kind = 'barh').invert_yaxis()
    plt.title('Job Function')
    plt.show()


def desChar_Date():
    arb = pd.read_csv("At-risk behaviors.csv")
    desChar_d = arb['Date'].describe
    print(desChar_d)
    count_d = arb['Date'].value_counts()
    print(count_d)


def desChar_Week():
    arb = pd.read_csv("At-risk behaviors.csv")
    desChar_w = arb['Week'].describe
    print(desChar_w)
    count_w = arb['Week'].value_counts()
    print(count_w)


def desChar_Shift():
    arb = pd.read_csv("At-risk behaviors.csv")
    desChar_s = arb['Shift'].describe
    print(desChar_s)
    count_s = arb['Shift'].value_counts()
    print(count_s)


def desChar_Arb():
    arb = pd.read_csv("At-risk behaviors.csv")
    desChar_b = arb['At-risk behavior'].describe
    print(desChar_b)
    count_b = arb['At-risk behavior'].value_counts()
    print(count_b)


def desChar_Employment():
    arb = pd.read_csv("At-risk behaviors.csv")
    desChar_e = arb['Employment'].describe
    print(desChar_e)
    count_e = arb['Employment'].value_counts()
    print(count_e)


def desChar_JobFunc():
    arb = pd.read_csv("At-risk behaviors.csv")
    desChar_jf = arb['Job Function'].describe
    print(desChar_jf)
    count_jf = arb['Job Function'].value_counts()
```

```python
        print(count_jf)


def pmf_Employment():
    arb = pd.read_csv("At-risk behaviors.csv")
    sns.set()
    sns.countplot(arb['Employment'], color = 'orange')
    plt.title('Pmf Employment')
    plt.show()


def cdf_Week():
    arb = pd.read_csv("At-risk behaviors.csv")
    sns.set()
    sns.countplot(arb['Week'], color = 'yellow')
    plt.title('Cdf Week')
    plt.show()


def norm():
    mu = 0
    variance = 1
    sigma = math.sqrt(variance)
    x = np.linspace(mu - 3*sigma, mu + 3*sigma, 100)
    plt.plot(x, stats.norm.pdf(x, mu, sigma))
    plt.title('Norm Dist')
    plt.show()


def norm_Arb():
    arb = pd.read_csv("At-risk behaviors.csv")
    sns.set()
    sns.countplot(arb['At-risk behavior'], color = 'purple')
    plt.title('Norm Dist At-risk behavior')
    plt.show()


def showScatter_ArbShift():
    arb = pd.read_csv("At-risk behaviors.csv")
    sns.set()
    sns.swarmplot('Shift', 'At-risk behavior', data = arb, palette = 'rainbow')
    plt.title('Scatter Arb vs Shift')
    plt.show()


def showScatter_ArbEmployment():
    arb = pd.read_csv("At-risk behaviors.csv")
    sns.set()
    sns.swarmplot('Employment', 'At-risk behavior', data = arb, palette = 'rainbow')
    plt.title('Scatter Arb vs Employment')
    plt.show()


if __name__ == "__main__":
    read_file()
```
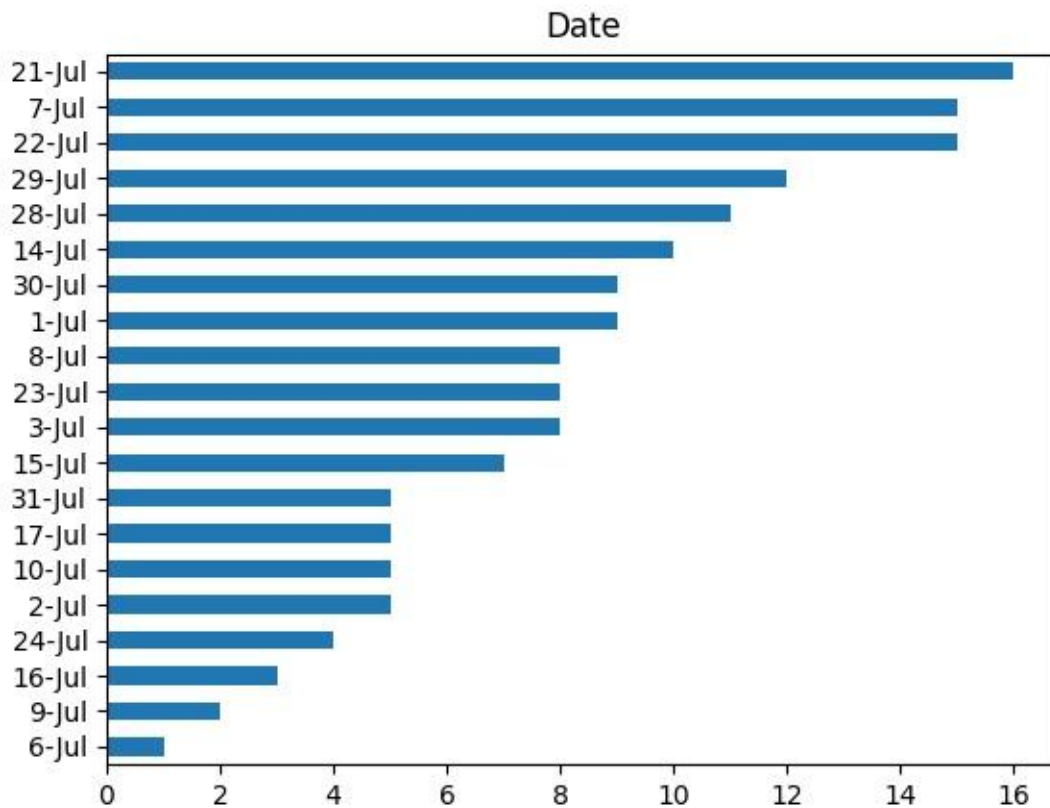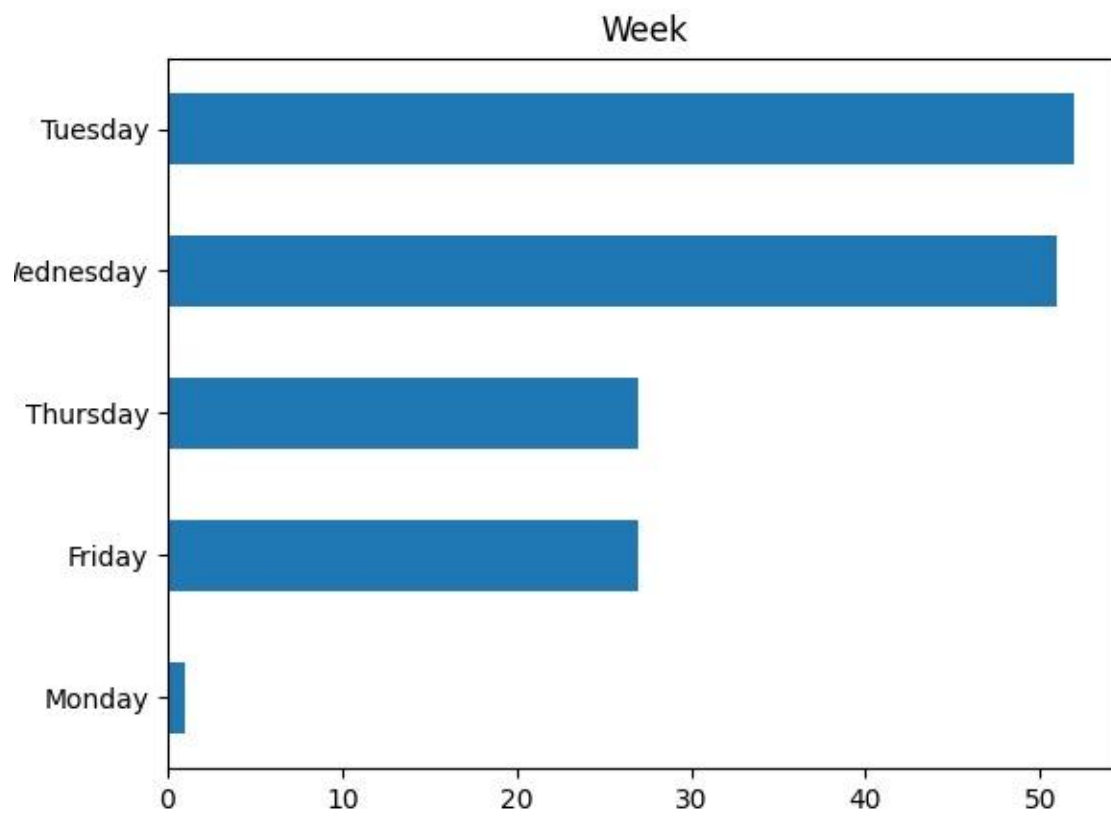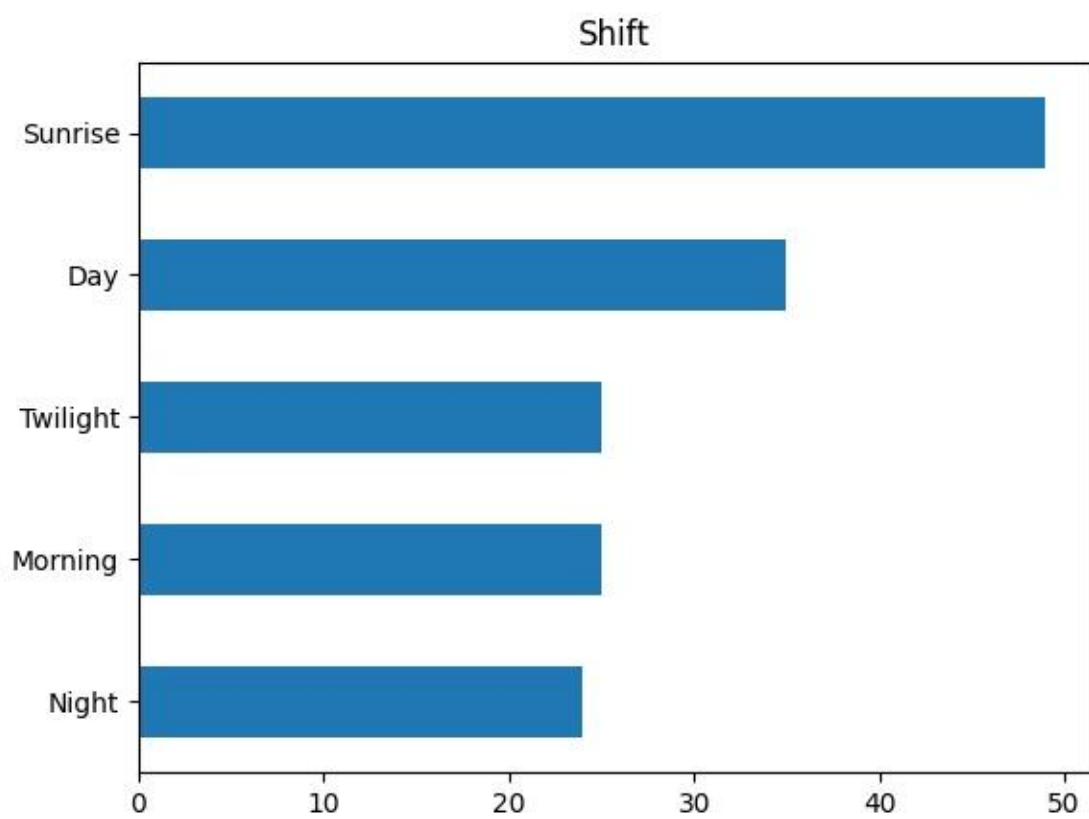
```
showBar_Date()
showBar_Week()
showBar_Shift()
showBar_Arb()
showBar_Employment()
showBar_JobFunc()
desChar_Date()
desChar_Week()
desChar_Shift()
desChar_Arb()
desChar_Employment()
desChar_JobFunc()
pmf_Employment()
cdf_Week()
norm()
norm_Arb()
showScatter_ArbShift()
showScatter_ArbEmployment()
```
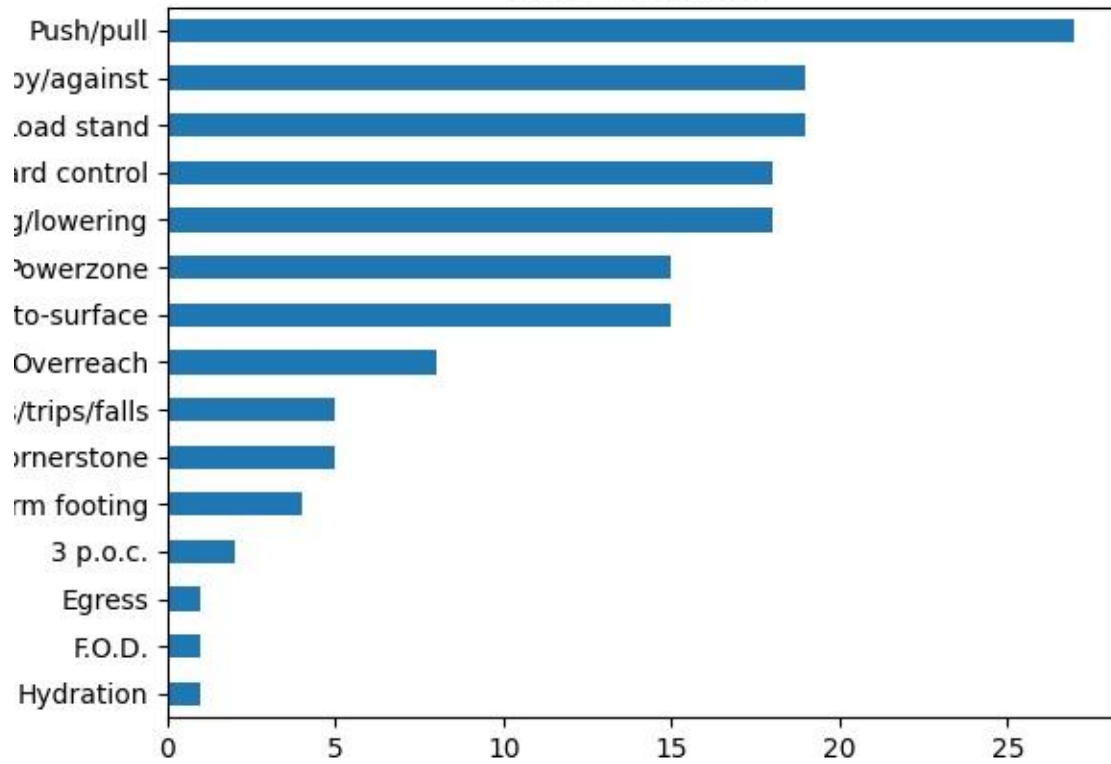
Output:

| | Date | Week | Shift | At-risk behavior | Employment | Job Function |
|---|---|---|---|---|---|---|
| 0 | 1-Jul | Wednesday | Sunrise | Lifting/lowering | Under | Mail Handler |
| 1 | 1-Jul | Wednesday | Day | Powerzone | Under | Mail Handler |
| 2 | 1-Jul | Wednesday | Day | Lifting/lowering | Over | Mail Handler |
| 3 | 1-Jul | Wednesday | Day | Push/pull | Over | Mail Handler |
| 4 | 1-Jul | Wednesday | Morning | Push/pull | Over | Freight Handler |



Date

Week

Shift

At-risk behavior

| Category | Value |
|---|---|
| Push/pull | 27 |
| by/against | 19 |
| Load stand | 19 |
| ard control | 18 |
| g/lowering | 18 |
| Powerzone | 15 |
| to-surface | 15 |
| Overreach | 8 |
| /trips/falls | 5 |
| ornerstone | 5 |
| rm footing | 4 |
| 3 p.o.c. | 2 |
| Egress | 1 |
| F.O.D. | 1 |
| Hydration | 1 |

Employment

Job Function

<bound method NDFrame.describe of 0      1-Jul

1      1-Jul

2      1-Jul

3      1-Jul

4      1-Jul

      ...

153    31-Jul

154    31-Jul

155    31-Jul

156    31-Jul

157    31-Jul

Name: Date, Length: 158, dtype: object>

21-Jul    16

22-Jul    15

7-Jul     15

29-Jul    12

28-Jul    11

14-Jul    10

1-Jul      9

30-Jul     9

8-Jul      8

3-Jul      8

23-Jul     8

15-Jul     7

10-Jul     5

31-Jul     5

2-Jul      5

17-Jul     5

24-Jul     4

16-Jul     3

9-Jul      2

6-Jul      1

Name: Date, dtype: int64

<bound method NDFrame.describe of 0      Wednesday

1      Wednesday

2      Wednesday

3      Wednesday

4      Wednesday

    ...

153     Friday

154     Friday

155     Friday

156     Friday

157     Friday

Name: Week, Length: 158, dtype: object>

Tuesday     52

Wednesday    51

Thursday     27

Friday     27

Monday      1

Name: Week, dtype: int64

<bound method NDFrame.describe of 0      Sunrise

1       Day

2       Day

3       Day

4     Morning

     ...

153   Sunrise

154   Morning

155   Morning

156   Sunrise

157   Sunrise

Name: Shift, Length: 158, dtype: object>

Sunrise     49

Day       35

Morning    25

Twilight    25

Night      24

Name: Shift, dtype: int64

<bound method NDFrame.describe of 0      Lifting/lowering

1          Powerzone

2      Lifting/lowering

3          Push/pull

4          Push/pull

       ...

153    Lifting/lowering

154        Push/pull

155      Firm footing

156    Struck by/against

157       Load stand

Name: At-risk behavior, Length: 158, dtype: object>

Push/pull          27

Struck by/against    19

Load stand         19

Lifting/lowering    18

Yard control        18

Hand-to-surface      15

Powerzone          15

Overreach           8

Cornerstone         5

Slips/trips/falls    5

Firm footing        4

3 p.o.c.           2

Egress             1

F.O.D.             1

Hydration          1

Name: At-risk behavior, dtype: int64

&lt;bound method NDFrame.describe of 0      Under

1     Under

2      Over

3      Over

4      Over

   ...

153    Under

154     Over

155     Over

156     Over

157     Over

Name: Employment, Length: 158, dtype: object&gt;

Over     131

Under     27

Name: Employment, dtype: int64

&lt;bound method NDFrame.describe of 0          Mail Handler

1        Mail Handler

2        Mail Handler

3        Mail Handler

4      Freight Handler

       ...

153       Mail Handler

154       Mail Handler

155       Mail Handler

156       Mail Handler

157    Forklift Operator

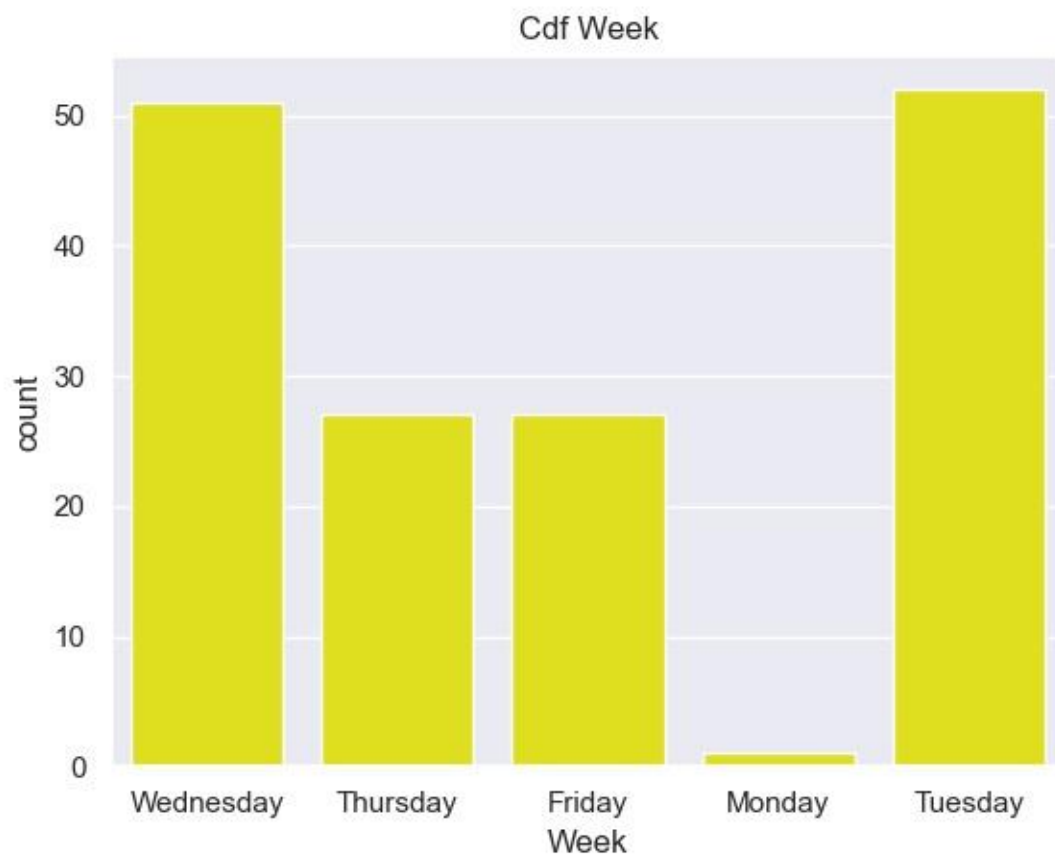Name: Job Function, Length: 158, dtype: object&gt;

Mail Handler        68
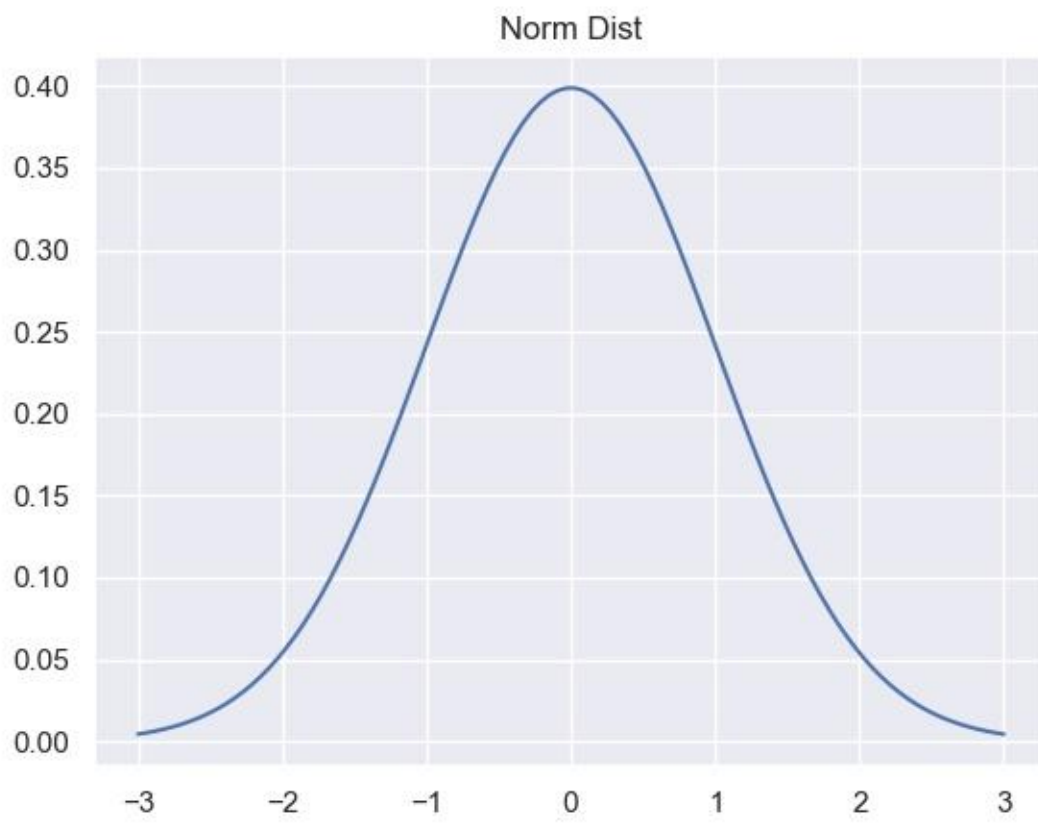
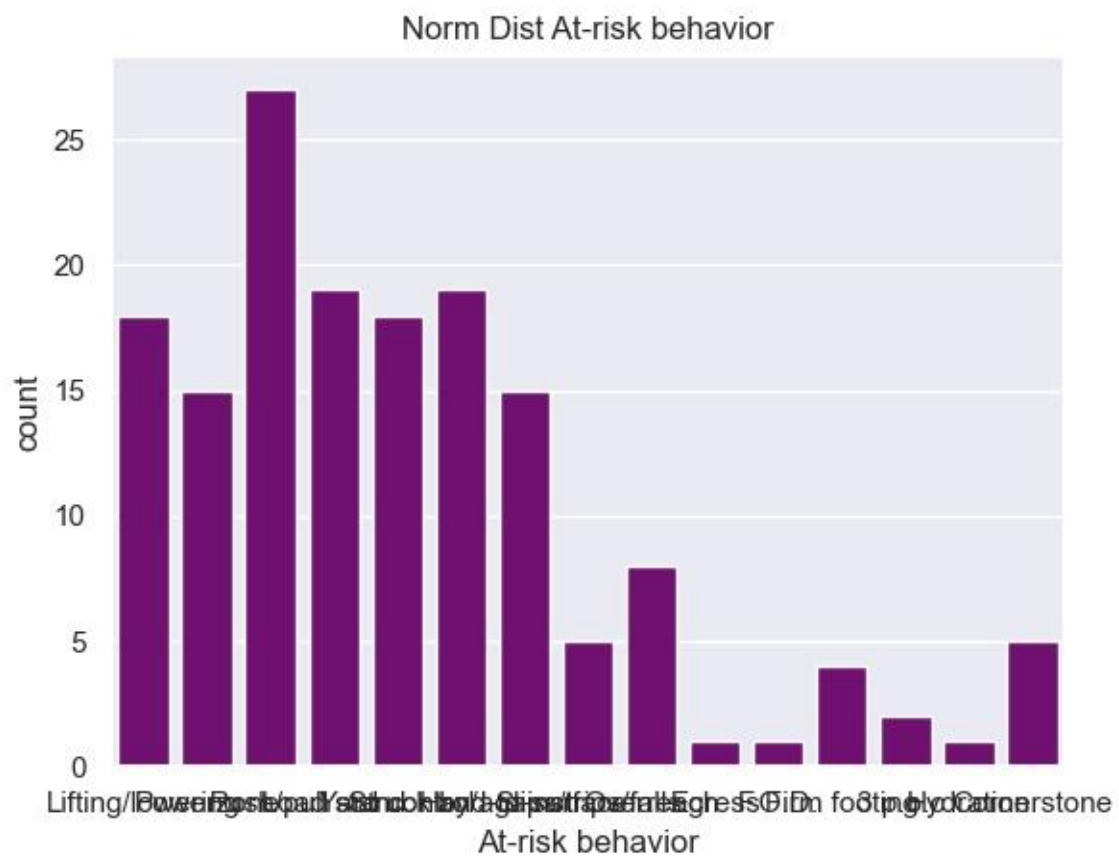Freight Handler      65

Forklift Operator    13

Tug Driver           12

Name: Job Function, dtype: int64

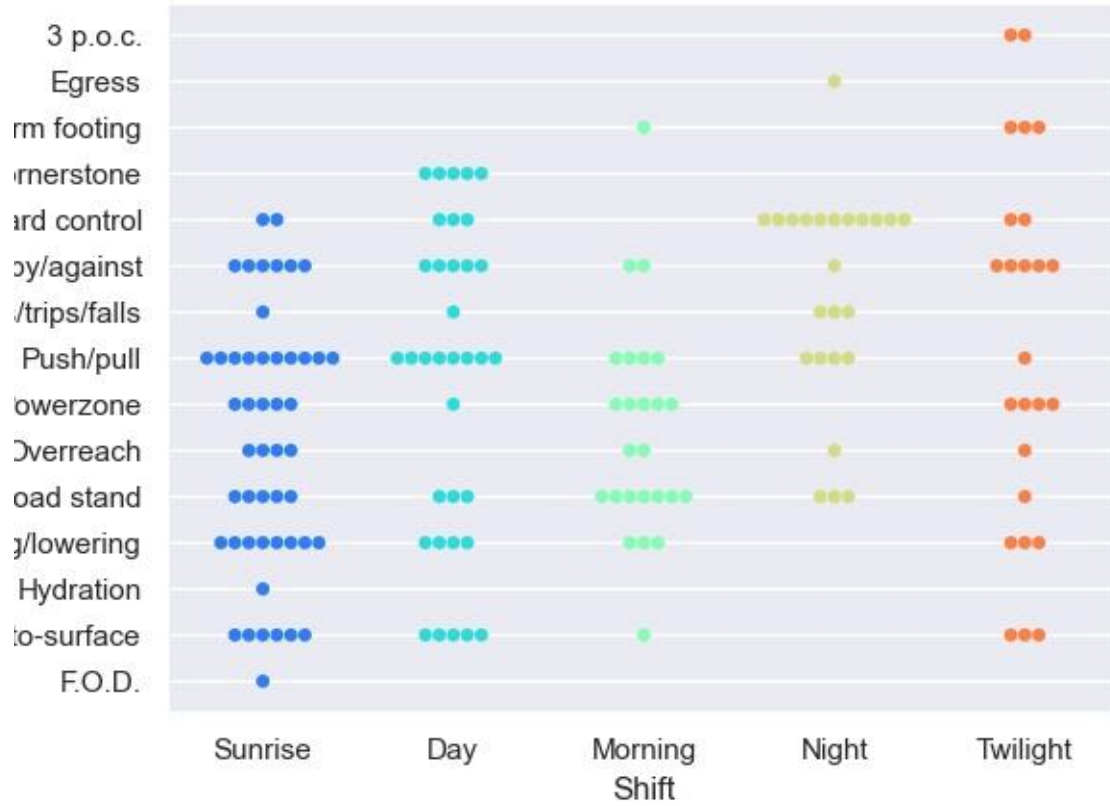Pmf Employment

Cdf Week

Norm Dist

Norm Dist At-risk behavior
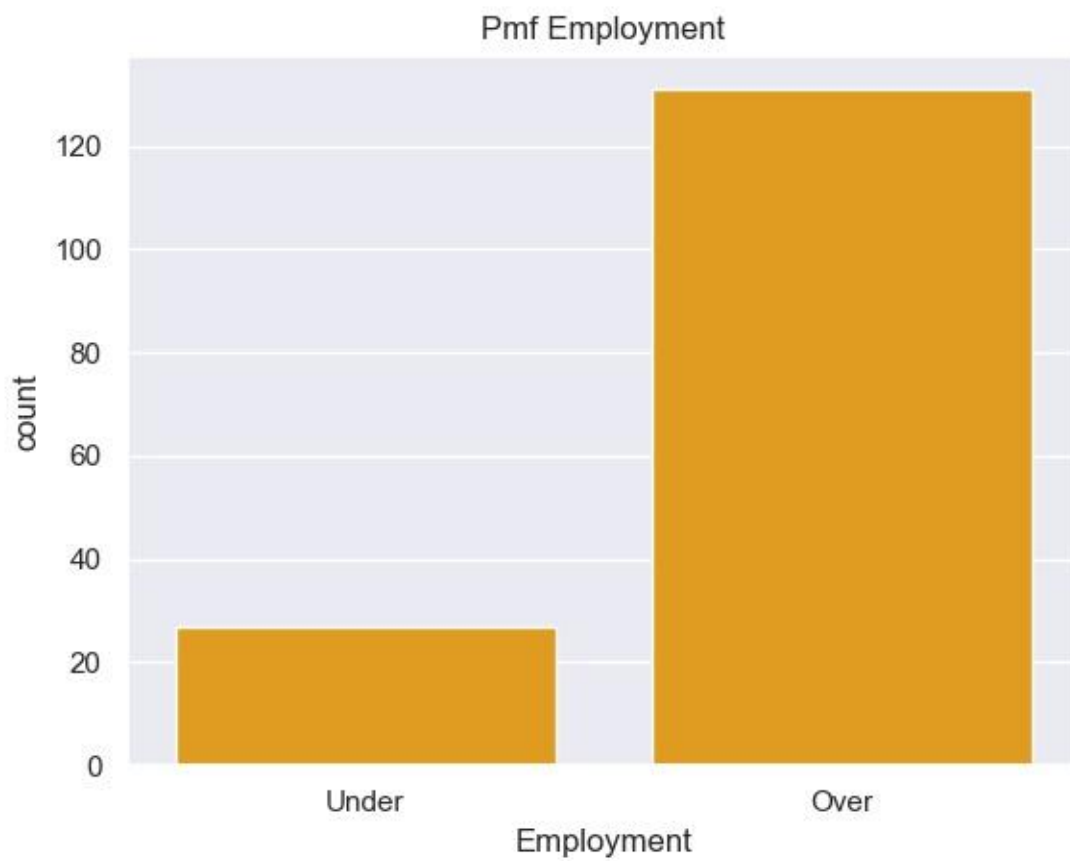
Scatter Arb vs Shift

Scatter Arb vs Employment