Assignment-2-set2-Q1

In [1]:

```python
from scipy import stats
from scipy.stats import norm
```

In [2]:

```python
# Find Z-Scores at X=50; Z = (X - µ)/σ
Z=(50-45)/8
Z
```

Out[2]:

0.625

In [3]:

```python
# find probability P(X>50) = 1-stats.norm.cdf(abs(z_score))
1-stats.norm.cdf(abs(0.625))
```

Out[3]:

0.26598552904870054

In [4]:

```python
# OR Find the probability P(X<=50); p_value=stats.norm.cdf(abs(z_score))
p_value=stats.norm.cdf(abs(0.625))
p_value
```

Out[4]:

0.7340144709512995

In [5]:

```python
# P(X>50) = 1-p(X<=50)
1-0.7340
```

Out[5]:

0.266

In [ ]:

Assignment-2-set-2-Q2.

In [12]:

```python
# A. More employees at the processing center are older than 44 than between 38 and 44.
```

In [13]:

```python
#p(38<X<44); Employees between 38 to 44 Yrs of age
stats.norm.cdf(44,38,6)-stats.norm.cdf(38,44,6)
```

Out[13]:

0.6826894921370859

In [14]:

```python
# B. A training program for employees under the age 30 at the center would be expected to a
```

In [15]:

```python
# P(X<30); Employees under 30 Yrs of age
stats.norm.cdf(30,38,6)
```

Out[15]:

0.09121121972586788

In [16]:

```python
# No.of employees attending training program from 400 nos. is N*P(X<30)
400*stats.norm.cdf(30,38,6)
```

Out[16]:

36.484487890347154

In [ ]:

Assignment-2-set-2-Q4.

In [17]:

```python
stats.norm.interval(0.99,100,20)
```

Out[17]:

(48.48341392902199, 151.516586070978)

In [ ]:

Assignment-2-set-2-Q5

In [22]:

```python
import numpy as np
```

In [23]:

```python
Mean=5+7
```

In [24]:

```python
print('Mean Profit is Rs',Mean*45,'Million')
SD=np.sqrt((9)+(16))
```

Mean Profit is Rs 540 Million

In [25]:

```python
print('Standard deviation is Rs',SD*45,'Million')
```

Standard deviation is Rs 225.0 Million

In [26]:

```python
print('Range is Rs',(stats.norm.interval(0.95,540,225)),'in Millions')
```

Range is Rs (99.00810347848784, 980.9918965215122) in Millions

In [28]:

```python
X=540+(-1.645)*(225)
X
```

Out[28]:

169.875

In [29]:

```python
print('5th percentile of profit(in Million Rupees)is',np.round(X,))
```

5th percentile of profit(in Million Rupees)is 170.0

In [32]:

```python
print('Range is Rs',(stats.norm.interval(0.95,540,225)),'in Millions')
```

Range is Rs (99.00810347848784, 980.9918965215122) in Millions

In [33]:

```python
X=540+(-1.645)*(225)
```

In [34]:

```python
print('5th percentile of profit(in Million Rupees)is',np.round(X,))
```

5th percentile of profit(in Million Rupees)is 170.0

In [35]:

```python
stats.norm.cdf(0,5,3)
```

Out[35]:

0.0477903522728147

In [36]:

```python
stats.norm.cdf(0,7,4)
```

Out[36]:

0.040059156863817086

In [ ]: