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In [1]:   # Aim : To perform hypothesis testing using Z test.
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In [2]:   # Name : Shriya Mechineni
          # class : 3rd year
          # Section : A
          # Roll No. :49
```

Z Test

```
In [3]:   ages=[10,20,35,50,28,40,55,18,16,55,30,25,43,18,30,28,14,24,16,17,32,35,26,27,65,18,43,2
```

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In [4]:   len(ages)
```

```
Out[4]:   32
```

```
In [5]:   import numpy as np
          ages_mean=np.mean(ages)
          print(ages_mean)
```

```
          30.34375
```

```
In [6]:   ## Lets take sample

          sample_size=31
          age_sample=np.random.choice(ages,sample_size)
```

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In [7]:   age_sample
```

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Out[7]:   array([70, 18, 27, 24, 14, 25, 55, 65, 17, 10, 18, 30, 32, 27, 50, 28, 18,
                 27, 70, 70, 55, 10, 18, 65, 43, 28, 35, 18, 28, 43, 16])
```

```
In [8]:   # from scipy.stats import ztest_1samp
```

```
In [9]:   from statsmodels.stats import weightstats as stests

          # Perform one-sample z-test
          ztest, p_value = stests.ztest(age_sample)

          # Print the results
          print("ztest", ztest)
          print("P-value:", p_value)
```

```
          ztest 9.880690367370683
          P-value: 5.048389618795463e-23
```

```
In [10]:  if p_value < 0.05:      # alpha value is 0.05 or 5%     (Level of significance)
              print(" we are rejecting null hypothesis")
          else:
              print("we are accepting null hypothesis")
```

```
           we are rejecting null hypothesis
```

```
In [ ]:
```

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