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In [1]: # Aim : To perform hypothesis testing using Z test.
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In [2]: # Name : Kaushal A. Bharade  
# class : 3rd year  
# Section : A  
# Roll No. : 11
```

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)
```

```
In [7]: age_sample
```

```
Out[7]: array([10, 14, 70, 50, 27, 28, 28, 65, 26, 20, 21, 30, 23, 43, 43, 40, 18,  
                20, 28, 18, 43, 35, 55, 55, 19, 25, 10, 27, 35, 19, 23])
```

```
In [8]: # from scipy.stats import ztest_1samp
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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 11.28422812710885  
P-value: 1.5701376272298335e-29
```

```
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 [ ]:
```