**EX.NO:3** **Implementation of Z-Test – One Sample Z-Test and Two Sample Z-Test**

**AIM:**

To wite a python program implementation of Z-test-one sample Z-test and two sample Z-test.

**ALGORITHM:**

Step 1: Evaluate the data distribution.

Step 2: Formulate Hypothesis statement symbolically

Step 3: Define the level of significance (alpha)

Step 4: Calculate Z test statistic or Z score.

Step 5: Derive P-value for the Z score calculated.

Step 6: Make decision:

Step 6.1: P-Value <= alpha, then we reject H0.

Step 6.2: If P-Value > alpha, Fail to reject H0

**PROGRAM:**

**3 A) One Sample Z-Test in Python:**

from stats.models.stats.weight.stats import ztest as ztest

#enter IQ levels for 20 patients

data = [88, 92, 94, 94, 96, 97, 97, 97, 99, 99,

105, 109, 109, 109, 110, 112, 112, 113, 114, 115]

#perform one sample z-test

ztest(data, value=100)

**3 B) Two Sample Z-Test in Python**

fromstatsmodels.stats.weightstats import ztest as ztest

#enter IQ levels for 20 individuals from each city

cityA = [82, 84, 85, 89, 91, 91, 92, 94, 99, 99,

105, 109, 109, 109, 110, 112, 112, 113, 114, 114]

cityB = [90, 91, 91, 91, 95, 95, 99, 99, 108, 109,

109, 114, 115, 116, 117, 117, 128, 129, 130, 133]

#perform two sample z-test

ztest(cityA, cityB, value=0)