**ASSIGNMENT**

**By**

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**Exercise#1: find the max element in an array**

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| **23** | **65** | **12** | **87** | **12** | **343** | **098** | **12** | **76** | **312** |

**Pre-condition:**

A variable I that acts as a loop counter

A variable **big** to store the biggest value of array.

You want to do compare the biggest value of the array

Initialise **big=-1** and **i = 0.**

**Post-Condition:**

After the loop termination, the value of the big must be grater then all the values from the array.

**Loop variant**

loop should not terminate until we have find biggest number array (i<arr.length)

**Loop invariant**

Before it iteration of loop variable must greater then value of array (arr[i]>big)

Pseudocode:

int [] arr = {23,65,12,87,12,343,98,12,76,312};

int big = -1;

int i = 0;

while (i<arr.length)

{

if(arr[i]>big)

{

big = arr[i];

}

i++;

**Exercise#2: Move zeroes to the end of Array**

**Pre-condition:**

Declare the number of values in array

Initialise **i = 0 , J = 0**

**Post-Condition:**

After the loop termination, all the zeros are moved in end of the array.

**Loop variant**

for(i=0;i<arr.length;i++) loop is used for store zeros in end of the array

loop should not terminate until we have arr[i] != 0

**Loop invariant**

Loop invariant must be true before and after each iteration (J < arr.length)

loop invariant to ensure correct output after the loop termination.

Pseudocode:

for (int i = 0;i < arr.length;i++)

{

if (arr[i] != 0)

{

arr[j++] = arr[i];

}

}

while (j < arr.length)

{

arr[j++] = 0;