**ASSIGNMENT ANSWER**

**SEARCHING IN AN ARRAY**

**LINEAR AND BINARY SEARCH**

**Q1: Given an array. Find the number X in the array. If the element is present, return the index of the element, else print “Element not found in array”. Input the size of the array, array from the user, and element X from the user. Use Linear Search to find the element.**

**Ans:** [**code**](https://gist.github.com/Prince-GH/e9d87ae3dde165b5cf0949daf5ef5dbb)

**Q2: Given an array and an integer “target”, return the last occurrence of “target” in the array. If the target is not present return -1.**

**Ans:** [**code**](https://gist.github.com/Prince-GH/a671c30f2b98798cc1e29598f94396c8)

**Q3: Given a sorted binary array, efficiently count the total number of 1’s in it.**

**Ans:** [**code**](https://gist.github.com/Prince-GH/98bdb0cb376c2dc63367ec76bc587cf6)

**Q4: Given a sorted integer array containing duplicates, count occurrences of a given number. If the element is not found in the array, report that as well.**

**Ans:** [**code**](https://gist.github.com/Prince-GH/69885abc77b0fa8d54bce31fabafcd6b)

**Q5: Given a positive integer num, return true if num is a perfect square or false otherwise. A perfect square is an integer that is the square of an integer. In other words, it is the product of some integer with itself.**

**Ans:** [**code**](https://gist.github.com/Prince-GH/7a11623b0b996b7165055296dccdb55b)

**SORTING ARRAY**

**Q1: Write a program to sort an array in descending order using bubble sort.**

**Ans:** [**code**](https://gist.github.com/Prince-GH/f90039d32b73c8cd58b11883c7e2ca04)

**Q2: WAP to sort an array in descending order using selection sort.**

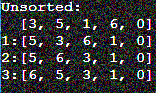
**Ans:** [**code**](https://gist.github.com/Prince-GH/5514a94516138118ed17120a61d1c3a7)

**Q3: WAP to sort an array in decreasing order using insertion sort.**

**Ans:** [**code**](https://gist.github.com/Prince-GH/ad526bc5fadaea9cd03008bfa756d5c8)

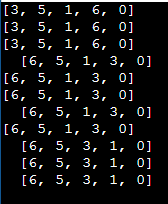
**Q4: Find out how many passes would be required to sort the following array in decreasing order using bubble sort.**

**“Input Array {3,5,1,6,0}”**

**Ans:** [**code**](https://gist.github.com/Prince-GH/284e5bdba0ee7166a41b66e111e58a21)

**Q5: Find out the number of iterations to sort the array in descending order using selection sort.**

**“Input Array {3,5,1,6,0}”**

**Ans:** [**code**](https://gist.github.com/Prince-GH/0b4860192ac3a65a6cb784eeefe969be)

**NUMBER SYSTEM**

**Q1: Given a number, print its binary representation.**

**Ans:** [**code**](https://gist.github.com/Prince-GH/d90043cce7394b15b4fff559a484f2d6)

**Q2: Given a number ‘n’, predict whether it is a power of two or not.**

**Ans:** [**code**](https://gist.github.com/Prince-GH/4655270577a598436f351cfe2598da2d)

**Q3: Given a number. Using bit manipulation, check whether it is odd or even.**

**Ans:** [**code**](https://gist.github.com/Prince-GH/af3095ae33f87e5072290eb9bb49dda1)

**Q4:** **Given a number, count the number of set bits in that number without using an extra space Note : bit ‘1’ is also known as set bit.**

**Ans:** [**code**](https://gist.github.com/Prince-GH/affaf22c06b58440990edb296ea46d3b)

**Q5:** **Given an integer array, duplicates are present in it in a way that all duplicates appear an even number of times except one which appears an odd number of times. Find that odd appearing element in linear time and without using any extra memory.**

**Ans:** [**code**](https://gist.github.com/Prince-GH/20f22065329937cbd6913b29743e9528)