**Birla Institute of Technology & Science, Pilani**
**2nd Semester 2016-17 - CS F211 – Data Structures and Algorithms**

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## Lab 8 – 18th March
## Topics – Bit Vectors and Bloom Filters

## Problem 2

Design and implement bit operations on an array of int values treated as a bit vector:

- Let Arr be an integer array of size *N* (*N* is taken as input). We can treat this array as a bit vector by storing only *0s or 1s* as its elements.
- Set operation: This operation sets the $j^{th}$ element (*0<=j<=N-1*) of the given integer array Arr. (*j* is taken as input)
- Get operation. This operation returns the $j^{th}$ element (0<=j<=N-1) of the given integer array Arr. (*j* is taken as input)

Implement the set and get operations on an array of integers, to be used as a bit vector. You can use the following table for designing your functions.

| Key | Function | Input Format | Description |
|---|---|---|---|
| 0 | CreateBitVector | 0 N | Creates a bit vector S in the form of an integer array of size N taken as input; And then initializes all its elements to zero. |
| 1 | Set | 1 j | Sets the value of $j^{th}$ element of S to 1. |
| 2 | Get | 2 j | Returns the value of $j^{th}$ element of S. You must also print the returned value. |

Sample input and output

| Sample Input | Sample Output |
|---|---|
| 0 100<br>1 23<br>1 62<br>1 91<br>2 62<br>2 91<br>2 34<br>-1 | 1<br>1<br>0 |