**Assisted Practice: 4.3 Range Queries**

This section will guide you to:

* Write a program in Java to find the sum of n number of elements in the range of L and R where 0 <= L <= R <= n-1
* Use Eclipse (the popular text editor for Java programs)
* Push code to Git

This lab has three subsections, namely:

* + 1. Creating a new project in Eclipse
    2. Writing the program in Java to understand range queries
    3. Pushing the code to your GitHub repositories

**Step 4.3.1:** Creating a new project in Eclipse

* Open Eclipses
* Go to File -> New -> Project -> Java Project -> Next
* Type in any project name and click on Finish
* Select your project and go to File -> New -> Class
* Enter **RangeQueries** in class name, check the checkbox **public static void main(String[] args)**, and click on Finish

**Step 4.3.2:** Writing the program in Java to understand range queries

public class RangeQueries

{

static int k = 16;

static int N = 100000;

static long table[][] = new long[N][k + 1];

static void buildSparseTable(int arr[], int n)

{

for (int i = 0; i < n; i++)

table[i][0] = arr[i];

for (int j = 1; j <= k; j++)

for (int i = 0; i <= n - (1 << j); i++)

table[i][j] = table[i][j - 1] + table[i + (1 << (j - 1))][j - 1];

}

static long query(int L, int R)

{

long answer = 0;

for (int j = k; j >= 0; j--)

{

if (L + (1 << j) - 1 <= R)

{

answer = answer + table[L][j];

L += 1 << j;

}

}

return answer;

}

public static void main(String args[])

{

int arr[] = { 3, 7, 2, 5, 8, 9 };

int n = arr.length;

buildSparseTable(arr, n);

System.out.println(query(0, 5));

System.out.println(query(3, 5));

System.out.println(query(2, 4));

}

}

**Output:**



**Step 4.3.3:** Pushing the code to your GitHub repositories

* Open your command prompt and navigate to the folder where you have created your files.

**cd <folder path>**

* Initialize your repository using the following command:

**git init**

* Add all the files to your git repository using the following command:

**git add .**

* Commit the changes using the following command:

**git commit . -m “Changes have been committed.”**

* Push the files to the folder you initially created using the following command:

**git push -u origin master**