3.7 Binary Search 



This section will guide you to:

* Create a Windows Console project in Visual Studio to do a Binary Search
* Create a method, runApp(), that will create an array and search for a value in it using Binary Search

**Development Environment**

* Visual Studio 2019 Community Version

This guide has five subsections, namely:

* + 1. Creating a Windows Console project in Visual Studio to do a Binary Search
    2. Adding a method, runApp(), that will create an array and search for a value in it using Binary Search
    3. Building the project
    4. Publishing and running the project
    5. Pushing the code to your GitHub repositories

**Step 3.7.1:** Creating a Windows Console project in Visual Studio to do a Binary Search

* Open Visual Studio.
* From the top menu, select **File->New->Project.**
* In **Create A New Project** screen, select **Console app (.NET Core)** from the list of available project types and click on **Next.**
* Enter **Project Name** as **Phase1Section4.15** and click on **Create.**
* This will create the files for a Windows Console project.

**Step 3.7.2:** Adding a method, runApp(), that will create an array and search for a value in it using Binary Search

* Select **Program.cs** as the current Code tab.
* Enter the following code:

**using** System;

**namespace** Phase1Section4.\_21

{

**class** Program

{

**static** **void** Main(**string**[] args)

{

runApp();

}

**public** **static** **void** runApp()

{

**int**[] marks = **new** **int**[10] { 55, 58, 60, 63, 64, 67, 72, 74, 89, 98 };

Console.WriteLine("Enter marks to search and press Enter:");

**string** input = Console.ReadLine();

**int** search = Int32.Parse(input);

**int** minNum = 0;

**int** maxNum = marks.Length - 1;

**int** foundElem = -1;

**while** (minNum <= maxNum && foundElem == -1)

{

**int** mid = (minNum + maxNum) / 2;

**if** (search == marks[mid])

{

foundElem = ++mid;

**break**;

}

**else** **if** (search < marks[mid])

{

maxNum = mid - 1;

}

**else**

{

minNum = mid + 1;

}

}

**if** (foundElem > -1)

{

Console.WriteLine("Found " + search + " at " + foundElem);

}

}

}

}

**Step 3.7.3:** Building the project

* From the top menu, choose **Build->Build Solution.**
* If any compile errors are shown, fix them as required.

**Step 3.7.4:** Publishing and running the project

* From the top menu, select **Debug->Start Without Debugging.**
* This will execute the program in a console window.

**Step** **3.7.5:** 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 created initially using the following command:

git push -u origin master