New Era University
COLLEGE OF INFORMATICS AND COMPUTING STUDIES
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Section/Schedule: 1 BSCS-2 , Friday 4PM-7PM
Program: BS Computer Science
Course: Data Structures and Algorithms

Basic Operations with Array

Traverse:

Source Code:

```
public class Traverse {
   public static void main(String[] args) {
      int[] LA = {1,3,5,7,8};
      int item = 10, k = 3, n = 5;
      int i = 0, j = n;
      System.out.print("The original array elements are :\n");
      for (i = 0; i < n; i++) {
         System.out.print(String.format("LA[%d] = %d  \n", i, LA[i]));
      }
   }
}
```

OUTPUT:

```
The original array elements are :
LA[0] = 1
LA[1] = 3
LA[2] = 5
LA[3] = 7
LA[4] = 8
```

Insertion:

Source Code:

```
public class Insertion {
   public static void main(String[] args) {
      int[] LA = {1,3,5,7,8};
      int item = 10, k = 3, n = 5;
      int i = 0, j = n;

      System.out.print("The original array elements are :\n");
      for (i = 0; i < n; i++) {
         System.out.print(String.format("LA[%d] = %d  \n", i, LA[i]));
      }

      // Expand number of elements
      int[] newLA = new int[n + 1];

      for (i = 0; i < n; i++) {
         newLA[i] = LA[i];
      }

      // Insertion
      n = n + 1;
      while (j > k) {
```

```
        newLA[j] = newLA[j - 1]; // Shift elements to the right
        j--;
      }

      newLA[k] = item;

      System.out.print("The array elements after insertion: \n");
      for (i = 0; i < n; i++) {
        System.out.print(String.format("LA[%d] = %d \n", i, newLA[i]));
      }
   }
}
```

OUTPUT:

```
The original array elements are :
LA[0] = 1
LA[1] = 3
LA[2] = 5
LA[3] = 7
LA[4] = 8
The array elements after insertion:
LA[0] = 1
LA[1] = 3
LA[2] = 5
LA[3] = 10
LA[4] = 7
LA[5] = 8
```

Deletion:

Source Code:

```
public class Deletion {
   public static void main(String[] args) {
      int[] LA = {1,3,5,7,8};
      int k = 3, n = 5;
      int i, j;

      System.out.print("The original array elements are :\n");
      for (i = 0; i < n; i++) {
        System.out.print(String.format("LA[%d] = %d  \n", i, LA[i]));
      }

      // Deletion
      j = k;
      while (j < n) {
        LA[j - 1] = LA[j];
        j = j + 1;
      }
      n = n - 1;

      System.out.print("The array elements after deletion: \n");
      for (i = 0; i < n; i++) {
        System.out.print(String.format("LA[%d] = %d \n", i, LA[i]));
      }
```

```
    }
}
```

OUTPUT:

```
The original array elements are :
LA[0] = 1
LA[1] = 3
LA[2] = 5
LA[3] = 7
LA[4] = 8
The array elements after deletion:
LA[0] = 1
LA[1] = 3
LA[2] = 7
LA[3] = 8
```

Search:

Source Code:

```
public class Search {
   public static void main(String[] args) {
      int LA[] = {1,3,5,7,8};
      int item = 5, n = 5;
      int i = 0, j = 0;

      System.out.print("The original array elements are :\n");
      for (i = 0; i < n; i++) {
         System.out.print(String.format("LA[%d] = %d  \n", i, LA[i]));
      }

      // Search
      while (j < n) {
         if (LA[j] == item) {
            break;
         }
         j = j + 1;
      }

      System.out.print(String.format("Found element %d at position %d \n", item, j+1));
   }
}
```

OUTPUT:

```
The original array elements are :
LA[0] = 1
LA[1] = 3
LA[2] = 5
LA[3] = 7
LA[4] = 8
Found element 5 at position 3
```

Update:

Source Code:

```
public class Updation {
   public static void main(String[] args) {
      int LA[] = {1,3,5,7,8};
      int k = 3, n = 5, item = 10;
      int i, j;

      System.out.print("The original array elements are :\n");
      for (i = 0; i < n; i++) {
         System.out.print(String.format("LA[%d] = %d  \n", i, LA[i]));
      }

      // Update value
      LA[k-1] = item;

      System.out.print("The array elements after updation :\n");
      for (i = 0; i < n; i++) {
         System.out.print(String.format("LA[%d] = %d \n", i, LA[i]));
      }
   }
}
```

OUTPUT: