**Question 1**

Write a program in which read 10 integers from a file, and remove repeating values from that array. File contains numbers ranging from 1 – 7.

|  |  |  |
| --- | --- | --- |
| **in.txt** |  | **Console / Command Prompt** |
| 4 3 1 3 5 6 1 1 2 6 |  | 2 4 5 |

Use the following method for this problem:

**Step 1:** Read data from file in an array

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Original Array | | | | | | | | | |
| Data | 4 | 3 | 1 | 3 | 5 | 6 | 1 | 1 | 2 | 6 |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

**Step 2:** Create another array index of size 7 (range: 1-7). With all data initialized to 0

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Count Array | | | | | | |
| Data | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

**Step 3:** Read value from first index of original array and increment value stored at the valued index of result array.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Count Array | | | | | | |
| Data | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

**Step 4:** Repeat the step 3 till the size of original array.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Count Array | | | | | | |
| Data | 3 | 1 | 2 | 1 | 1 | 2 | 0 |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

**Step 5:** Overwrite the original array with the indices that have count 1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Original Array | | | | | | | | | |
| Data | 2 | 4 | 5 |  |  |  |  |  |  |  |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

**Step 6:** Display the data on console

**Output on console**

2 4 5

**Question 2**

Write a program in which read 10 integers from a file, and remove pairs from that array.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Original Array | | | | | | | | | |
| Data | 1 | 3 | 3 | 3 | 5 | 5 | 7 | 9 | 9 | 10 |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Required Resultant Array | | | | | | | | | |
| Data | 1 | 3 | 7 | 10 |  |  |  |  |  |  |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Use the following method for this problem:

**Step 1:** Read the value from first index from Original Array and place it in Result Array

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Original Array | | | | | | | | | |
| Data | 1 | 3 | 3 | 3 | 5 | 5 | 7 | 9 | 9 | 10 |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Result Array | | | | | | | | | |
| Data | 1 |  |  |  |  |  |  |  |  |  |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

**Step 2:** Read the value from Second index from Original Array and check if last value placed in the result array is same?  
If the value is same, remove it from result array. Else place it in the array result array.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Original Array | | | | | | | | | |
| Data | 1 | 3 | 3 | 3 | 5 | 5 | 7 | 9 | 9 | 10 |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Result Array | | | | | | | | | |
| Data | 1 | 3 |  |  |  |  |  |  |  |  |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

**Step 3:** Repeat the step 2 till the size of original array.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Original Array | | | | | | | | | |
| Data | 1 | 3 | 3 | 3 | 5 | 5 | 7 | 9 | 9 | 10 |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Result Array | | | | | | | | | |
| Data | 1 | 3 | 7 | 10 |  |  |  |  |  |  |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

**Step 4:** Overwrite the data of original array by result array.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Original Array | | | | | | | | | |
| Data | 1 | 3 | 7 | 10 |  |  |  |  |  |  |
| Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

**Step 5:** Display the original array.

**Question 3**

Write a program in which, read **words** from a file into a **character** array **one by one**. Now reverse each word using **pointers** and store the word into a file **“output.txt”**.

**input.txt**

**Outpt.txt**

olleH

dlroW

yppaH

daS

kcuL

Hello

World

Happy

Sad

Luck