

CSE ASSIGNMENT - 7

Problem - 1

Question:

Write a program to insert an element into a sorted array

Code:

```
// Program to insert a value into a sorted array

#include <stdio.h>

int insertkey(int arr[], int n, int x, int capacity)
{
    if (n >= capacity)
    {
        return n;
    }

    int i;

    for (i = n - 1; (i >= 0 && arr[i] > x); i--)
    {
        arr[i + 1] = arr[i];
    }

    arr[i + 1] = x;

    return (n + 1);
}

int main()
{
    int i, n, x;

    printf("Enter the number of elements: ");
    scanf("%d", &n);

    int arr[n + 1];

    for (i = 0; i < n; i++)
    {
        scanf("%d", &arr[i]);
    }

    printf("\nEnter the element to be inserted: ");
    scanf("%d", &x);
```

```

n = insertkey(arr, n, x, 10);

printf("\nThe array after insertion: \n");

for (i = 0; i < n; i++)
{
    printf("%d ", arr[i]);
}

return 0;
}

```

Output:

```

Enter the number of elements: 5
1
2
4
5
6

Enter the element to be inserted: 3

The array after insertion:
1 2 3 4 5 6

```

Problem - 2

Question:

Write a program to insert multiple elements into a array at positions which are multiples of 3

Code:

```

// Program to insert values in positions which are multiples of 3

#include <stdio.h>

int main(int argc, char const *argv[]) {

    int n;

    printf("How many elements would you like to insert : ");
    scanf(" %d", &n);

    int noob_array[n];

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

```

```

{
    scanf(" %d", noob_array + i);
}

printf("The new array would be :\n[ ");

for (int i = 0; i < n; i++)
{
    printf("0, 0, %d, ", *(noob_array + i));
}

printf("\b\b ]\n");

return 0;
}

```

Output :

```

How many elements would you like to insert : 5
1
2
3
4
5
The new array would be :
[ 0, 0, 1, 0, 0, 2, 0, 0, 3, 0, 0, 4, 0, 0, 5 ]

```

Problem - 3

Question:

Write a program to delete the first occurrence of a value in an array using a value as an input

Code:

```

// Program to delete a value from an array based on value

#include <stdio.h>

int main(int argc, char const *argv[]) {

    int n;

    printf("How many elements would you like to have in your array : ");
    scanf(" %d", &n);

    int arr[n];

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

```

```

{
    scanf(" %d", arr + i);
}

int rem;
int x = 1;

printf("What element would you like to remove : ");
scanf(" %d", &rem);
printf("[ ");

for (int i = 0; i < n; i++)
{
    if (*(arr + i) == rem && x != 0)
    {
        x = 0;
        continue;
    }

    printf("%d, ", *(arr + i));
}

printf("\b\b ]\n");

return 0;
}

```

Output:

```

How many elements would you like to have in your array : 5
1
1
2
2
4
What element would you like to remove : 2
[ 1, 1, 2, 4 ]

```

Problem - 4

Question:

Write a program to remove all occurrences of a value in an array

Code:

```

// Program to delete a value from an array based on value

#include <stdio.h>

```

```

int main(int argc, char const *argv[]) {

    int n;

    printf("How many elements would you like to have in your array : ");
    scanf(" %d", &n);

    int arr[n];

    for (int i = 0; i < n; i++)
    {
        scanf(" %d", arr + i);
    }

    int rem;

    printf("What element would you like to remove : ");
    scanf(" %d", &rem);
    printf("[ ");

    for (int i = 0; i < n; i++)
    {
        if (*(arr + i) == rem)
        {
            continue;
        }

        printf("%d, ", *(arr + i));
    }

    printf("\b\b ]\n");

    return 0;
}

```

Output:

```

How many elements would you like to have in your array : 5
1
2
2
4
2
What element would you like to remove : 2
[ 1, 4 ]

```

Problem - 5

Question:

Write a program to remove duplicates from an array

Code:

```
// Program to delete redundant elements

#include <stdio.h>

int main(int argc, char const *argv[])
{

    struct dict
    {
        int value;
        int count;
    };

    int n;

    printf("How many elements would you like in your array : ");
    scanf(" %d", &n);

    struct dict dict_arr[n];
    int temp, found = -1, filled = 0;

    for (int i = 0; i < n; i++)
    {
        dict_arr[i].value = 0;
        dict_arr[i].count = -1;
    }

    for (int i = 0; i < n; i++)
    {
        printf("Enter element %d : ", i + 1);
        scanf(" %d", &temp);

        for (int j = 0; j < n; j++)
        {
            if (dict_arr[j].value == temp && dict_arr[j].count > 0)
            {
                dict_arr[j].count++;
                found = -1;
                break;
            }
            else
            {
                found = j - filled;
            }
        }

        if (found != -1)
        {
```

```

        dict_arr[found].value = temp;
        dict_arr[found].count = 1;
        filled++;
    }
}

printf("[ ");

for (int i = n - 1; i >= 0; i--)
{
    if (dict_arr[i].count == -1)
    {
        continue;
    }

    printf("%d, ", dict_arr[i].value);
}

printf("\b\b ]\n");

return 0;
}

```

Output :

```

How many elements would you like in your array : 5
Enter element 1 : 1
Enter element 2 : 1
Enter element 3 : 4
Enter element 4 : 4
Enter element 5 : 5
[ 1, 4, 5 ]

```
