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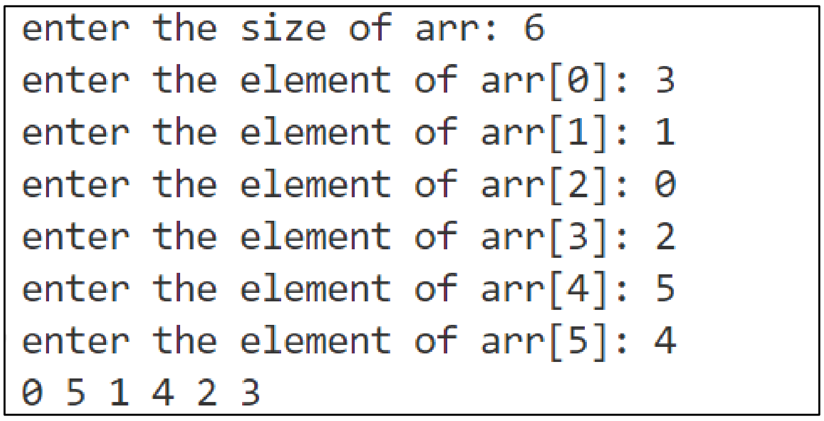
Code :

```
#include<stdio.h>
void sort(int arr[], int n){
   for(int i = 0; i<n-1; ++i){
      int minIndex = i;
      int minValue = arr[i];
      for(int j = i + 1; j<n; ++j){
         if(arr[j] < minValue){
            minValue = arr[j];
            minIndex = j;
         }
      }

      // swap the current value with min
      if(minIndex != i){
         arr[i] ^= arr[minIndex];
         arr[minIndex] ^= arr[i];
         arr[i] ^= arr[minIndex];
      }
   }
}
int inputArr(int arr[], int n){
   for(int i = 0; i<n; ++i){
      printf("enter the element of arr[%d]: ", i);
      scanf("%d", &arr[i]);
   }
}
void print(int arr[], int n){
   for(int i = 0; i<n; ++i){
      printf("%d ", arr[i]);
   }
   printf("\n");
}
int main(){
   int n;
   printf("enter the size of arr: ");
   scanf("%d", &n);
   int arr[n];
   inputArr(arr, n);
   sort(arr, n);
   int result[n], i = 0, j = n-1, k = 0;
   while(i <= j){
      result[k++] = arr[i++];
      result[k++] = arr[j--];
   }
   print(result, n);
}
```

Output:



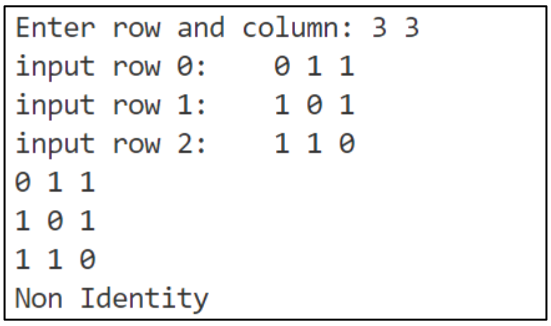
```
enter the size of arr: 6
enter the element of arr[0]: 3
enter the element of arr[1]: 1
enter the element of arr[2]: 0
enter the element of arr[3]: 2
enter the element of arr[4]: 5
enter the element of arr[5]: 4
0 5 1 4 2 3
```

Code :

```
#include<stdio.h>

int isIdentity(int row, int col, int matrix[][col]){
   if(row != col) return 0;
   for(int i = 0; i<row; ++i){
      for(int j = 0; j<col; ++j){
         if(i == j && matrix[i][j] != 1){
            return 0;
         }
         else if(i != j && matrix[i][j] != 0){
            return 0;
         }
      }
   }
   return 1;
}

void inputMatrix(int row, int col, int matrix[][col]){
   for(int i = 0; i<row; ++i){
      for(int j = 0; j<col; ++j){
         scanf("%d", &matrix[i][j]);
      }
   }
}

void printMatrix(int row, int col, int matrix[][col]){
   for(int i = 0; i<row; ++i){
        for(int j = 0; j<col; ++j){
            printf("%d ", matrix[i][j]);
        }
        printf("\n");
    }
}

int main(){
    int row, col;
    printf("Enter row and column: ");
    scanf("%d %d", &row, &col);
    int matrix[row][col];
    inputMatrix(row, col, matrix);
    printMatrix(row, col, matrix);
    printf(isIdentity(row, col, matrix)? "Identity" : "Non Identity");
    return 0;
}
```

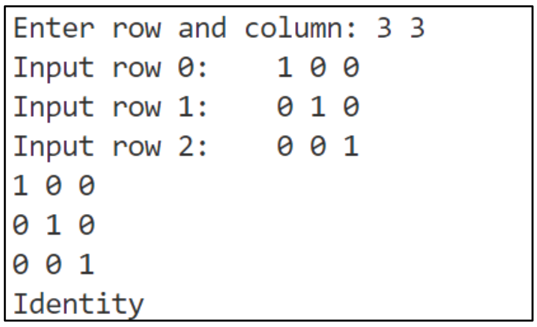
Output :

Test case 1:



```
Enter row and column: 3 3
input row 0:    0 1 1
input row 1:    1 0 1
input row 2:    1 1 0
0 1 1
1 0 1
1 1 0
Non Identity
```

Test case 2:



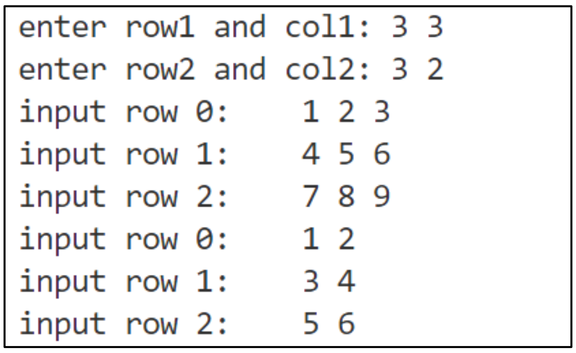
```
Enter row and column: 3 3
Input row 0:    1 0 0
Input row 1:    0 1 0
Input row 2:    0 0 1
1 0 0
0 1 0
0 0 1
Identity
```

Code:

```
#include<stdio.h>


void inputMatrix(int row, int col, int matrix[][col]){
   for(int i = 0; i<row; ++i){
         printf(“input row %d \t”, i);
      for(int j = 0; j<col; ++j){
         scanf("%d", &matrix[i][j]);
      }
   }
}


void printMatrix(int row, int col, int matrix[][col]){
   for(int i = 0; i<row; ++i){
      for(int j = 0; j<col; ++j){
         printf("%d ", matrix[i][j]);
      }
      printf("\n");
   }
}
int main(){
   int r1, c1, r2, c2;
   printf("enter row1 and col1: ");
   scanf("%d %d", &r1, &c1);


   printf("enter row2 and col2: ");
   scanf("%d %d", &r2, &c2);
   if(c1 != r2){
      printf("invalid order");
      return 0;
```

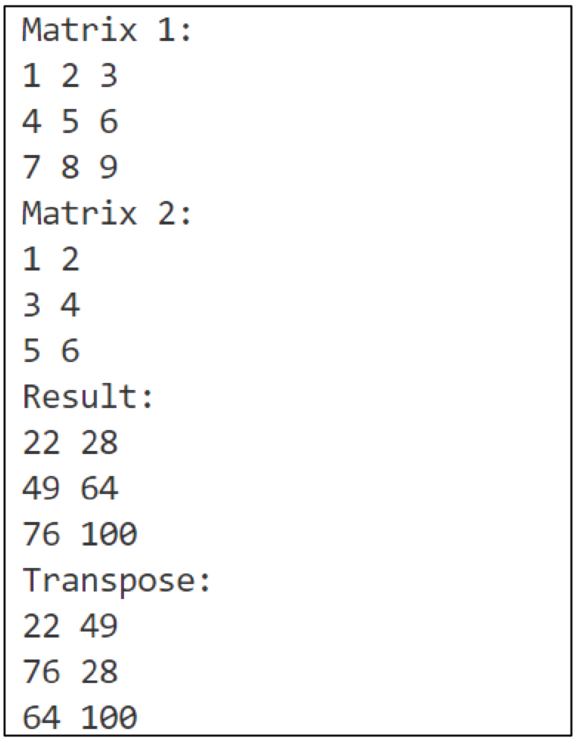
```
}
int mat1[r1][c1];
int mat2[r2][c2];

inputMatrix(r1, c1, mat1);
inputMatrix(r2, c2, mat2);

printf("Matrix 1: \n");
printMatrix(r1, c1, mat1);

printf("Matrix 2: \n");
printMatrix(r2, c2, mat2);

// multiplication of matrix
int result[r1][c2];
for(int i = 0; i<r1; ++i){
    for(int j = 0; j<c2; ++j){
        result[i][j] = 0;
        for(int k = 0; k<r2; ++k){
            result[i][j] += mat1[i][k] * mat2[k][j];
        }
    }
}

printf("Result: \n");
printMatrix(r1, c2, result);

int transpose[c2][r1];
for(int i = 0; i<c2; ++i){
    for(int j = 0; j<r1; ++j){
            transpose[i][j] = result[j][i];
        }
    }

    printf("Transpose: \n");
    printMatrix(r1, c2, transpose);

    return 0;
}
```

Input :



```
enter row1 and col1: 3 3
enter row2 and col2: 3 2
input row 0:    1 2 3
input row 1:    4 5 6
input row 2:    7 8 9
input row 0:    1 2
input row 1:    3 4
input row 2:    5 6
```

Output:



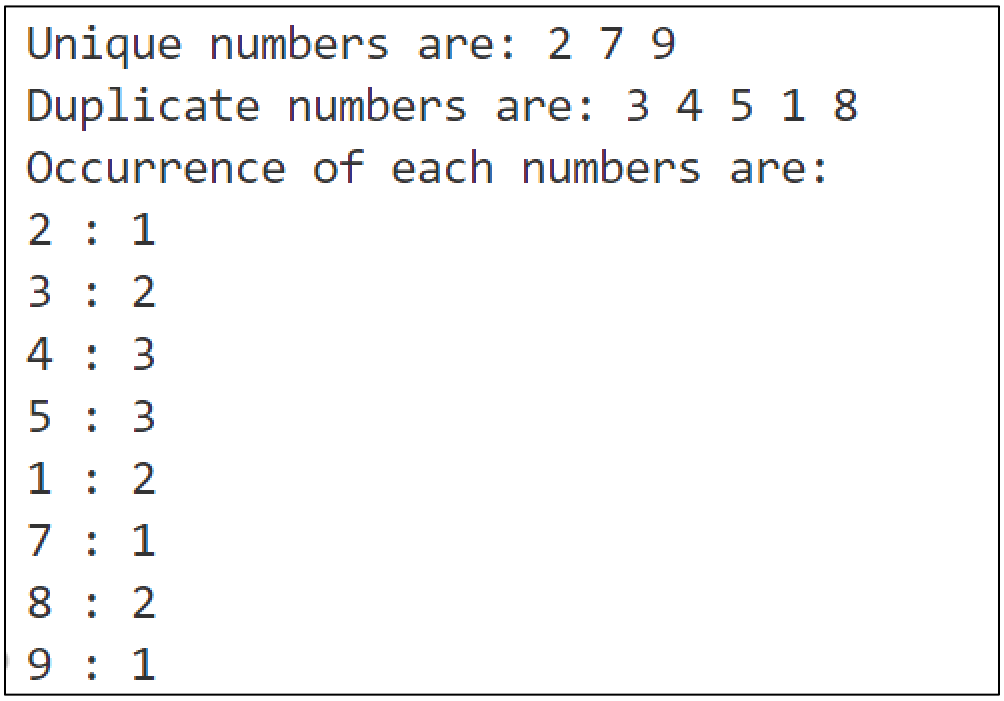
```
Matrix 1:
1 2 3
4 5 6
7 8 9
Matrix 2:
1 2
3 4
5 6
Result:
22 28
49 64
76 100
Transpose:
22 49
76 28
64 100
```

Code:

```
#include <stdio.h>


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


struct Pair{
   int first, second;
} typedef Pair;


void insert(Pair freqArr[], int *n, int value){
   // increase the frequency of existing element
   for(int i = 0; i<*n; ++i){
      if(freqArr[i].first == value){
         freqArr[i].second++;
         return;
      }
   }


   // add a new element
   freqArr[*n].first = value;
   freqArr[*n].second = 1;
   (*n)++;
}
int main() {
   int arr[] = {2, 3, 4, 5, 4, 3, 1, 7, 8, 9, 8, 5, 1, 4, 5};
```

```
    int n = sizeof(arr) / sizeof(int);
    Pair freqArr[n];
    int size = 0;

    for(int i = 0; i<n; ++i){
        insert(freqArr, &size, arr[i]);
    }

    printf("\nUnique numbers are: ");
    for(int i = 0; i<size; ++i){
        if(freqArr[i].second == 1){
            printf("%d ", freqArr[i].first);
        }
    }

    printf("\nDuplicate numbers are: ");
    for(int i = 0; i<size; ++i){
        if(freqArr[i].second > 1){
            printf("%d ", freqArr[i].first);
        }
    }

    printf("\nOccurrence of each numbers are:\n");
    for(int i = 0; i<size; ++i){
        printf("%d : %d\n", freqArr[i].first, freqArr[i].second);
    }

    return 0;
}
```

Output

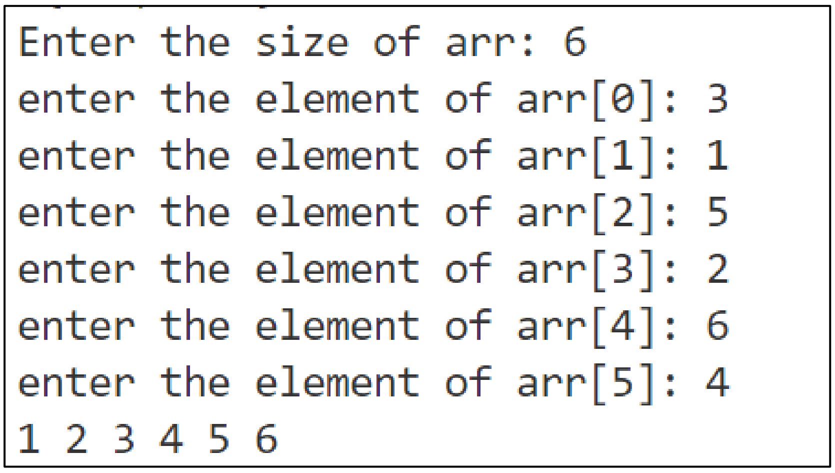


```
Unique numbers are: 2 7 9
Duplicate numbers are: 3 4 5 1 8
Occurrence of each numbers are:
2 : 1
3 : 2
4 : 3
5 : 3
1 : 2
7 : 1
8 : 2
9 : 1
```

Code:

```c
#include<stdio.h>
void selectionSort(int arr[], int n){
    for(int i = 0; i<n-1; ++i){
        int minIndex = i;
        int minValue = arr[i];
        for(int j = i + 1; j<n; ++j){
            if(arr[j] < minValue){
                minValue = arr[j];
                minIndex = j;
            }
        }

        // swap the current value with min
        if(minIndex != i){
            arr[i] ^= arr[minIndex];
            arr[minIndex] ^= arr[i];
            arr[i] ^= arr[minIndex];
        }
    }
}
int inputArr(int arr[], int n){
    for(int i = 0; i<n; ++i){
        printf("enter the element of arr[%d]: ", i);
        scanf("%d", &arr[i]);
    }
}
void printArr(int arr[], int n){
    for(int i = 0; i<n; ++i){
        printf("%d ", arr[i]);
    }
    printf("\n");
}
int main(){
    int n;
    printf("Enter the size of arr: ");
    scanf("%d", &n);
    int arr[n];
    inputArr(arr, n);
    selectionSort(arr, n);
    printArr(arr, n);
    return 0;
}
```

Output:



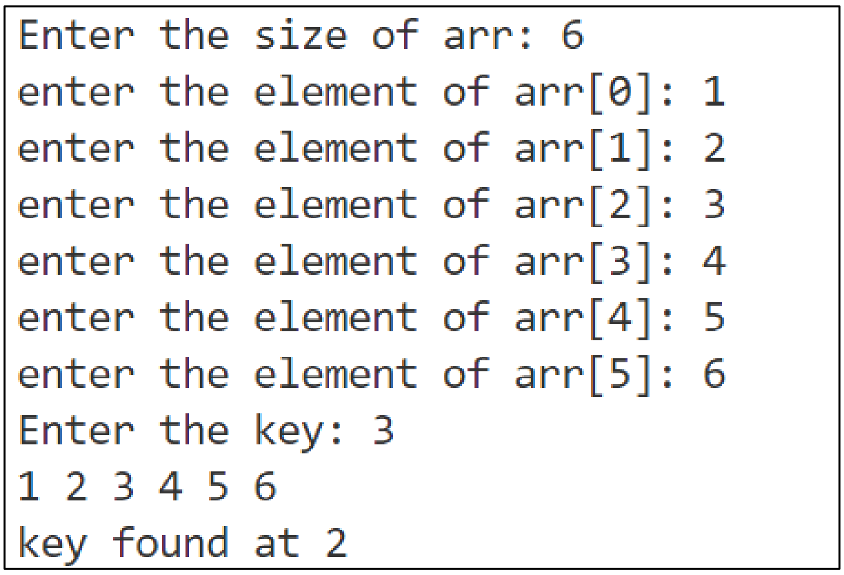
```
Enter the size of arr: 6
enter the element of arr[0]: 3
enter the element of arr[1]: 1
enter the element of arr[2]: 5
enter the element of arr[3]: 2
enter the element of arr[4]: 6
enter the element of arr[5]: 4
1 2 3 4 5 6
```

Code:

```
#include<stdio.h>
int binarySearch(int arr[], int low, int high, int key){
    if(low > high) return -1;
    int mid = (low + high) / 2;
    if(arr[mid] == key) return mid;

    if(key < arr[mid]){
        return binarySearch(arr, low, mid-1, key);
    }
    else{
        return binarySearch(arr, mid+1, high, key);
    }
}

void sort(int arr[], int n){
    for(int i = 0; i<n-1; ++i){
        int minIndex = i;
        int minValue = arr[i];
        for(int j = i + 1; j<n; ++j){
            if(arr[j] < minValue){
                minValue = arr[j];
                minIndex = j;
            }
        }

        // swap the current value with min
        if(minIndex != i){
            arr[i] ^= arr[minIndex];
            arr[minIndex] ^= arr[i];
            arr[i] ^= arr[minIndex];
        }
    }
}
int inputArr(int arr[], int n){
    for(int i = 0; i<n; ++i){
        printf("enter the element of arr[%d]: ", i);
        scanf("%d", &arr[i]);
    }
}
void printArr(int arr[], int n){
    for(int i = 0; i<n; ++i){
        printf("%d ", arr[i]);
    }
    printf("\n");
}
int main(){
    int n, key;
    printf("Enter the size of arr: ");
    scanf("%d", &n);
    int arr[n];
    inputArr(arr, n);
    printf("Enter the key: ");
    scanf("%d", &key);

    sort(arr, n);
    printArr(arr, n);
    int result = binarySearch(arr, 0, n, key);
    if(result != -1){
        printf("key found at %d\n", result);
    }
    else{
        printf("key not found\n");
    }
    return 0;
}
```

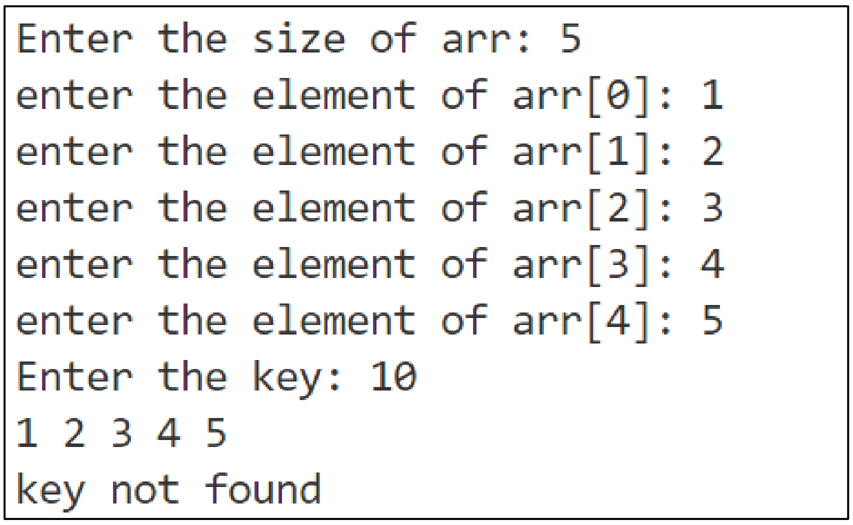
Output:

Test Case 1:



```
Enter the size of arr: 6
enter the element of arr[0]: 1
enter the element of arr[1]: 2
enter the element of arr[2]: 3
enter the element of arr[3]: 4
enter the element of arr[4]: 5
enter the element of arr[5]: 6
Enter the key: 3
1 2 3 4 5 6
key found at 2
```

Test Case 2:

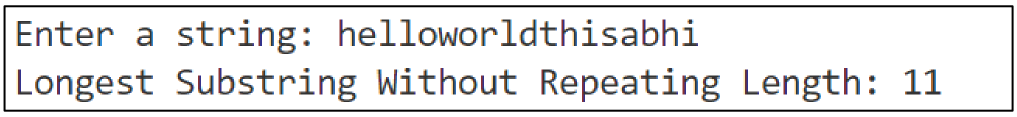


```
Enter the size of arr: 5
enter the element of arr[0]: 1
enter the element of arr[1]: 2
enter the element of arr[2]: 3
enter the element of arr[3]: 4
enter the element of arr[4]: 5
Enter the key: 10
1 2 3 4 5
key not found
```

Code:

```
#include<stdio.h>
#include<string.h>
int main(){
    int lastIndex[256];
    for(int i = 0; i<256; ++i){
        lastIndex[i] = -1;
    }
    char str[100];
    printf("Enter a string: ");
    gets(str);
    int maxLen = 0;
    int i = 0;
    for(int j = 0; j<strlen(str); ++j){
        if(lastIndex[str[j]] >= i){
            i = lastIndex[str[j]] + 1;
        }
        lastIndex[str[j]] = j;
        int len = j - i + 1;
        if(len > maxLen){
            maxLen = len;
        }
    }
    printf("Longest Substring Without Repeating Length: %d", maxLen);
    return 0;
}
```

Output:



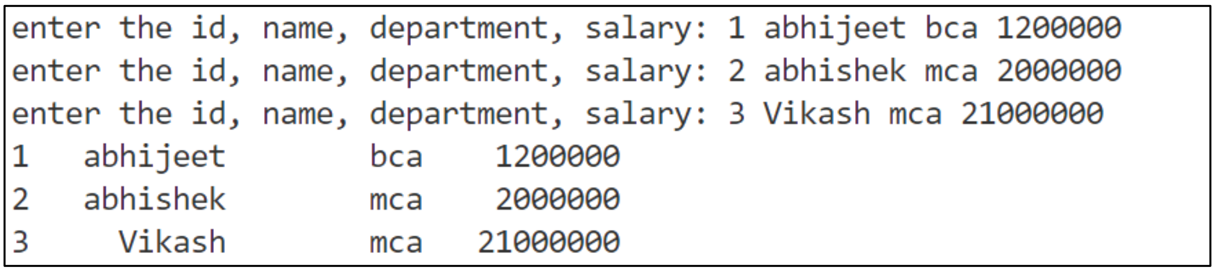
```
Enter a string: helloworldthisabhi
Longest Substring Without Repeating Length: 11
```

Code:

```
#include<stdio.h>
struct Employee{
   char name[50];
   char department[50];
   int id;
   long int salary;
} typedef Employee;

void printRecord(Employee record[], int n){
   for(int i = 0; i<n; ++i){
      printf("%d %10s %10s %10ld\n",
      record[i].id, record[i].name, record[i].department, record[i].salary);
   }
}

void inputRecord(Employee record[], int n){
   for(int i = 0; i<n; ++i){
      printf("enter the id, name, department, salary: ");
      scanf("%d %s %s %ld",
      &record[i].id, &record[i].name, &record[i].department, &record[i].salary);
   }
}

int main(){
   int n;
   printf("enter the size of record: ");
   scanf("%d", &n);
   Employee record[n];
   inputRecord(record, n);
```

```
    printRecord(record, n);
    return 0;
}
```

Output:



```
enter the id, name, department, salary: 1 abhijeet bca 1200000
enter the id, name, department, salary: 2 abhishek mca 2000000
enter the id, name, department, salary: 3 Vikash mca 21000000
1   abhijeet        bca    1200000
2   abhishek        mca    2000000
3     Vikash        mca   21000000
```

Code:

```
#include<stdio.h>
#include<string.h>
#define MAX_STUDENTS 100
struct Student
{
   char name[20];
   char course[10];
   int roll;
} typedef Student;

void insert(Student records[], int *n){
   if(*n >= MAX_STUDENTS){
      printf("Record is full can't add more students.\n");
      return;
   }

   printf("Enter roll no: ");
   scanf("%d", &records[*n].roll);

   printf("Enter Name: ");
   scanf(" %[^\n]", records[*n].name);

   printf("Enter Course: ");
   scanf(" %[^\n]", records[*n].course);

   (*n)++;
   printf("one record inserted successfully\n");
}
```

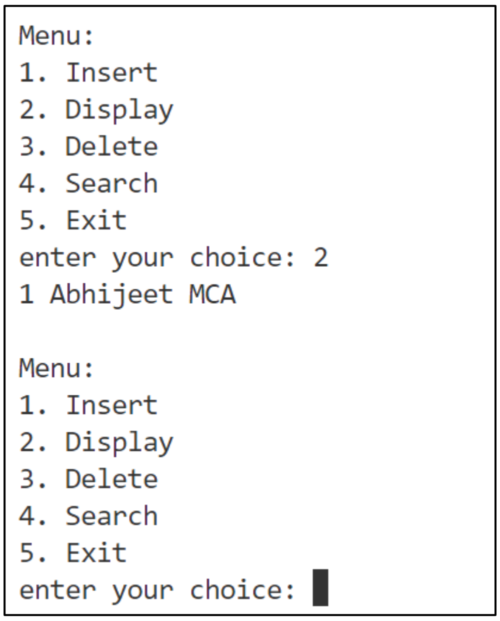
```
void display(Student records[], int n){
    for(int i = 0; i<n; ++i){
        printf("%d %s %s\n", records[i].roll, records[i].name, records[i].course);
    }
}


void delete(Student records[], int *n){
    int roll;
    printf("Enter roll no of student to delete: ");
    scanf("%d", &roll);

    int isFound = 0, i , j;
    for(i = 0; i<*n; ++i){
        if(records[i].roll == roll){
            isFound = 1;
            break;
        }
    }

    if(!isFound){
        printf("student with %d roll not no found\n");
        return;
    }

    for(j = i; j < (*n) - 1; j++){
        records[j] = records[j+1];
    }
    (*n)--;
    printf("student with %d roll no deleted.\n");
}
```

```
void search(Student records[], int n){
   int roll;
   printf("Enter roll no of student to delete: ");
   scanf("%d", &roll);

   int isFound = 0, i , j;
   for(i = 0; i<n; ++i){
      if(records[i].roll == roll){
         isFound = 1;
         break;
      }
   }

   if(!isFound){
      printf("student with %d roll not no found\n");
      return;
   }

   printf("%d %s %s\n", records[i].roll, records[i].name, records[i].course);
}

int main(){

   Student records[MAX_STUDENTS];
   int n = 0;
   int choice;

   do{
      printf("\nMenu:\n");
```

```
        printf("1. Insert\n");
        printf("2. Display\n");
        printf("3. Delete\n");
        printf("4. Search\n");
        printf("5. Exit\n");

        printf("enter your choice: ");
        scanf("%d", &choice);

        switch (choice)
        {
            case 1: insert(records, &n); break;
            case 2: display(records, n); break;
            case 3: delete(records, &n); break;
            case 4: search(records, n);  break;
            default: printf("Invalid choice\n"); break;
        }

    }while(choice != 5);

    return 0;
}
```

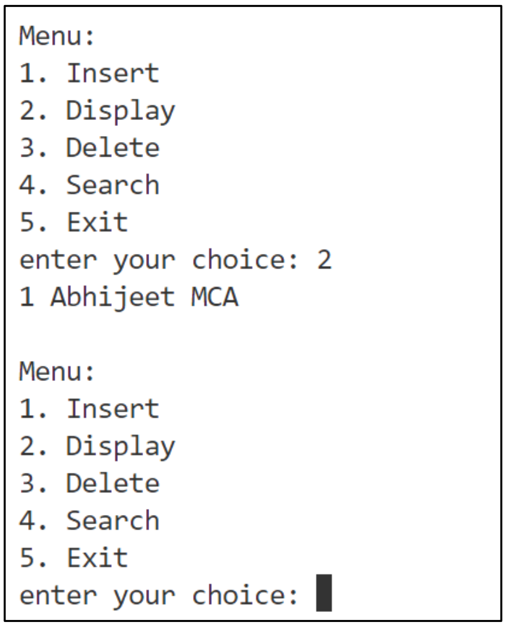
Output:

Insert



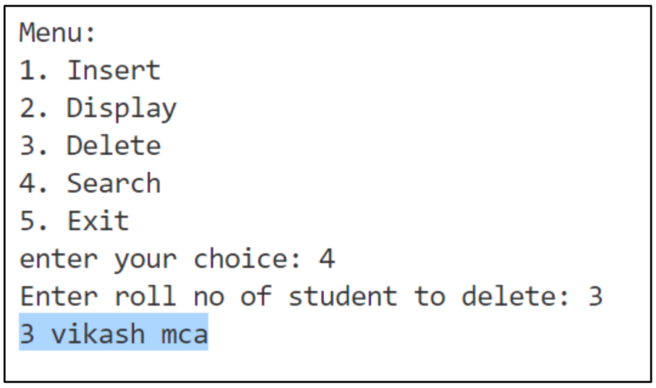
```
Menu:
1. Insert
2. Display
3. Delete
4. Search
5. Exit
enter your choice: 2
1 Abhijeet MCA

Menu:
1. Insert
2. Display
3. Delete
4. Search
5. Exit
enter your choice: 
```

Display



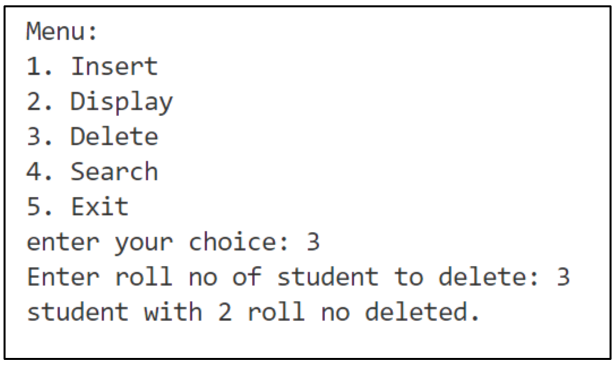
```
Menu:
1. Insert
2. Display
3. Delete
4. Search
5. Exit
enter your choice: 2
1 Abhijeet MCA

Menu:
1. Insert
2. Display
3. Delete
4. Search
5. Exit
enter your choice: 
```

Search



```
Menu:
1. Insert
2. Display
3. Delete
4. Search
5. Exit
enter your choice: 4
Enter roll no of student to delete: 3
3 vikash mca
```

Delete



```
Menu:
1. Insert
2. Display
3. Delete
4. Search
5. Exit
enter your choice: 3
Enter roll no of student to delete: 3
student with 2 roll no deleted.
```

Code:

```
#include <stdio.h>
#include <stdlib.h>

struct Node
{
    int data;
    struct Node *next;
};

typedef struct Node Node;

Node *getNode(int data)
{
    Node *node = (Node *)malloc(sizeof(Node));
    node->data = data;
    node->next = NULL;
    return node;
}

void insertAtBegin(Node **head, int data)
{
    Node *newNode = getNode(data);
    if (!*head)
    {
        *head = newNode;
        return;
    }
    newNode->next = *head;
    *head = newNode;
```

```
}

void insertAtEnd(Node **head, int data)
{
   if (!*head)
   {
      insertAtBegin(head, data);
      return;
   }

   Node *newnode = getNode(data);
   Node *curr;
   for (curr = *head; curr->next; curr = curr->next)
      ;
   curr->next = newnode;
}

void insertAt(Node **head, int data, int pos)
{
   if (pos <= 0)
   {
      insertAtBegin(head, data);
      return;
   }
   Node *newnode = getNode(data);
   Node *temp = *head;
   for (int i = 1; i < pos && temp->next; ++i, temp = temp->next)
      ;
   newnode->next = temp->next;
   temp->next = newnode;
```

```
}

void reverse(Node **head)
{
   if (!*head || !(*head)->next)
      return;

   Node *prev = NULL;
   Node *curr = *head;
   Node *next = (*head)->next;

   while (curr)
   {
      next = curr->next;
      curr->next = prev;
      prev = curr;
      curr = next;
   }
   *head = prev;
}

void reverseDisplay(Node *head)
{
   Node *lastVisited = NULL;
   while (lastVisited != head)
   {
      Node *curr;
      for (curr = head; curr->next != lastVisited; curr = curr->next)
         ;
      printf("%d ", curr->data);
```

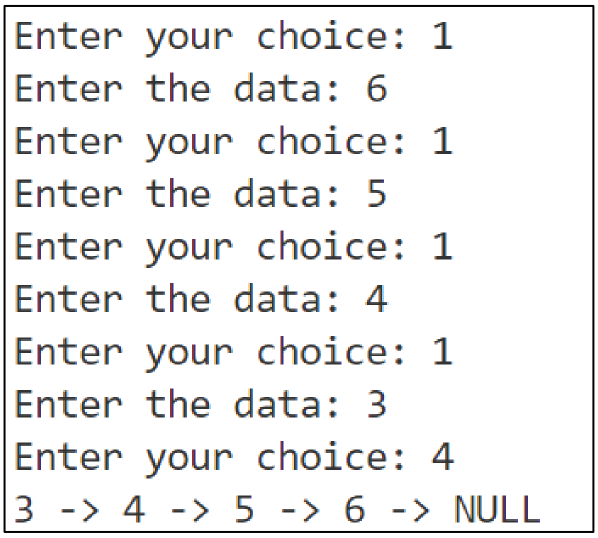
```
        lastVisited = curr;
    }
    printf("\n");
}

void sort(Node *head)
{
    for (Node *i = head; i->next; i = i->next)
    {
        Node *min = i;
        for (Node *j = i->next; j; j = j->next)
        {
            if (j->data < min->data)
            {
                min = j;
            }
        }
        if (min != i)
        {
            i->data ^= min->data;
            min->data ^= i->data;
            i->data ^= min->data;
        }
    }
}

int search(Node *head, int key)
{
    int i = 0;
    while (head)
    {
        if (head->data == key)
            return i;
        head = head->next;
        i++;
    }
    return -1;
}

void delete(Node **head, int key)
{
    Node *toDelete;
    // Delete at Beginning
    if (*head && (*head)->data == key)
    {
        toDelete = *head;
        *head = (*head)->next;
        free(toDelete);
        return;
    }

    Node *curr = *head;
    while (curr && curr->next && curr->next->data != key)
    {
        curr = curr->next;
    }

    // If the key was not found
    if (!curr || !curr->next)
    {
        return;
    }

    toDelete = curr->next;
    curr->next = curr->next->next;
    free(toDelete);
}

void display(Node *head)
{
    while (head)
    {
        printf("%d -> ", head->data);
        head = head->next;
    }
    printf("NULL\n");
}

int main()
{
    Node *head = NULL;
    printf("1. Insert at Beginning\n");
    printf("2. Insert at End\n");
    printf("3. Insert at Specific Position\n");
    printf("4. Display\n");
    printf("5. Delete\n");
    printf("6. Reverse Display\n");
    printf("7. Reverse the Linked List\n");
    printf("8. Search\n");
    printf("9. Sort(using selection sort)\n");
```

```
int data, pos, key;
while (1)
{
   int choice;
   printf("Enter your choice: ");
   scanf("%d", &choice);

   switch (choice)
   {
   case 1:
      printf("Enter the data: ");
      scanf("%d", &data);
      insertAtBegin(&head, data);
      break;

   case 2:
      printf("Enter the data: ");
      scanf("%d", &data);
      insertAtEnd(&head, data);
      break;

   case 3:
      printf("Enter the data and position: ");
      scanf("%d %d", &data, &pos);
      insertAt(&head, data, pos);
      break;

   case 4:
      display(head);
```

```
            break;
        case 5:
            printf("Enter the key: ");
            scanf("%d", &key);
            delete (&head, key);
            break;

        case 6:
            reverseDisplay(head);
            break;
        case 7:
            reverse(&head);
            break;
        case 8:
            printf("Enter the key: ");
            scanf("%d", &key);
            printf(search(head, key) != -1 ? "Found\n" : "Not Found\n");
            break;
        case 9:
            sort(head);
            break;
        default:
            printf("Invalid choice\n");
            break;
        }
    }
    return 0;
}
```

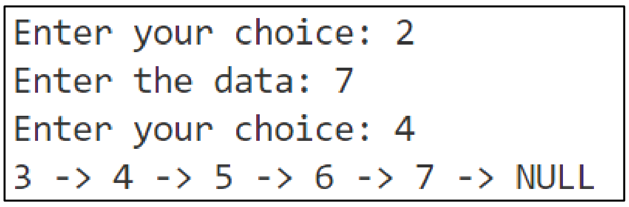
Output:

Input at beginning



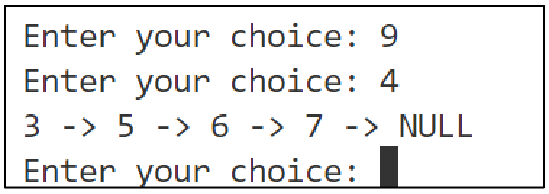
```
Enter your choice: 1
Enter the data: 6
Enter your choice: 1
Enter the data: 5
Enter your choice: 1
Enter the data: 4
Enter your choice: 1
Enter the data: 3
Enter your choice: 4
3 -> 4 -> 5 -> 6 -> NULL
```

Input at ending



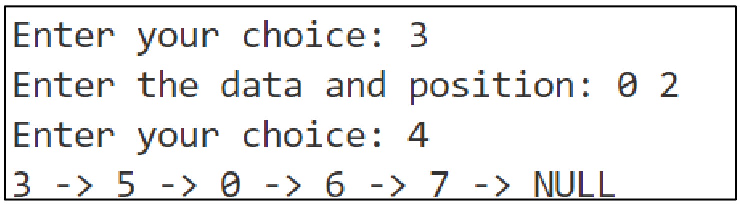
```
Enter your choice: 2
Enter the data: 7
Enter your choice: 4
3 -> 4 -> 5 -> 6 -> 7 -> NULL
```

Sort



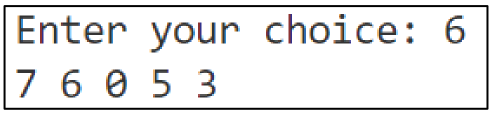
```
Enter your choice: 9
Enter your choice: 4
3 -> 5 -> 6 -> 7 -> NULL
Enter your choice:
```

Insert at Specific Position



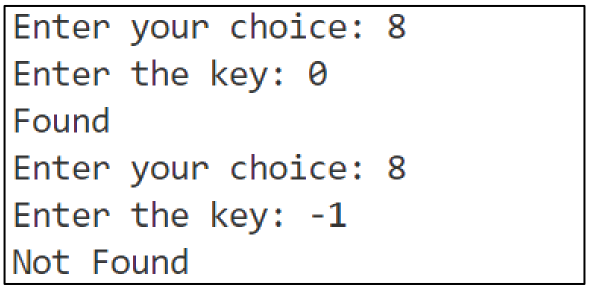
```
Enter your choice: 3
Enter the data and position: 0 2
Enter your choice: 4
3 -> 5 -> 0 -> 6 -> 7 -> NULL
```

Reverse and Display



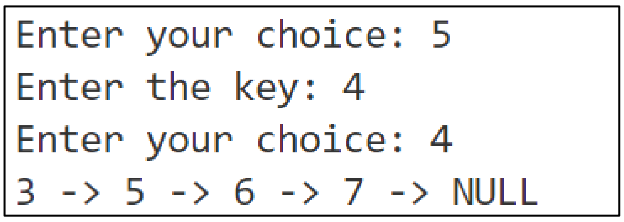
```
Enter your choice: 6
7 6 0 5 3
```

Search



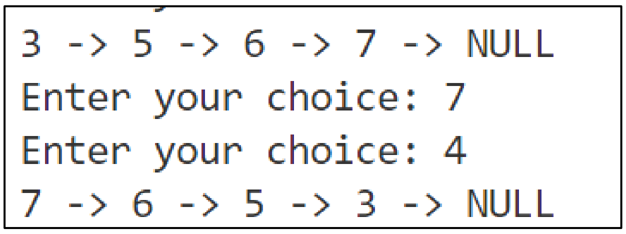
```
Enter your choice: 8
Enter the key: 0
Found
Enter your choice: 8
Enter the key: -1
Not Found
```

Delete



```
Enter your choice: 5
Enter the key: 4
Enter your choice: 4
3 -> 5 -> 6 -> 7 -> NULL
```

Reverse

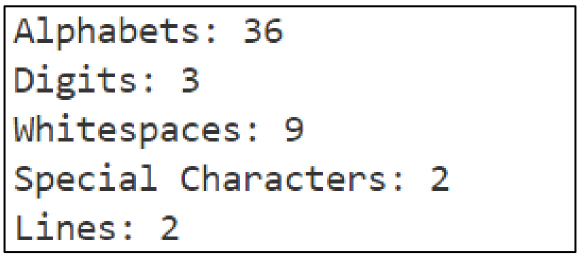


```
3 -> 5 -> 6 -> 7 -> NULL
Enter your choice: 7
Enter your choice: 4
7 -> 6 -> 5 -> 3 -> NULL
```

Code:

```
#include <stdio.h>
#include <ctype.h>

int main() {
    FILE *file;
    char ch;
    int alphabets = 0, digits = 0, whitespaces = 0, specialchars = 0, lines = 0;

    // Write to the file
    file = fopen("C:\\users\\abhij\\desktop\\Data.txt", "w");
    if (file == NULL) {
        perror("Unable to open file in write mode");
        return 1;
    }
    fputs("Hello World!\nThis is a test file with 123 numbers.", file);
    fclose(file);

    // Read from the file and count characters
    file = fopen("C:\\users\\abhij\\desktop\\Data.txt", "r");
    if (file == NULL) {
        perror("Unable to open file in read mode");
        return 1;
    }

    while ((ch = fgetc(file)) != EOF) {
        if (isalpha(ch))
            alphabets++;
        else if (isdigit(ch))
            digits++;
        else if (isspace(ch)) {
            whitespaces++;
            if (ch == '\n')
                lines++;
        } else
            specialchars++;
    }

    fclose(file);

    printf("Alphabets: %d\nDigits: %d\nWhitespaces: %d\nSpecial Characters: %d\nLines: %d\n",
           alphabets, digits, whitespaces, specialchars, lines + 1);

    return 0;
}
```

Output:

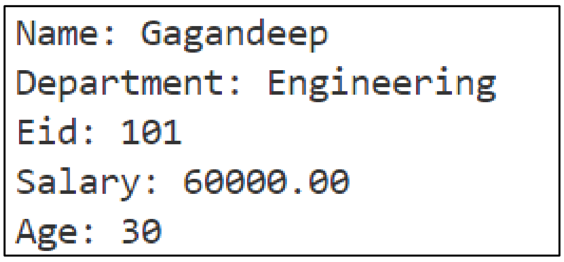


```
Alphabets: 36
Digits: 3
Whitespaces: 9
Special Characters: 2
Lines: 2
```

```
#include <stdio.h>

typedef struct {
   char name[50];
   char department[50];
   int eid;
   float salary;
   int age;
} Employee;

int main() {
   FILE *file;
   Employee emp = {"Gagandeep", "Engineering", 101, 60000.00, 30};

   // Write to the file
   file = fopen("C:\\users\\abhij\\desktop\\Emp.dat", "wb");
   if (file == NULL) {
      printf("Unable to open file in write mode\n");
      return 0;
   }
   fwrite(&emp, sizeof(Employee), 1, file);
   fclose(file);

   // Read from the file
   file = fopen("C:\\users\\abhij\\desktop\\Emp.dat", "rb");
   if (file == NULL) {
      printf("Unable to open file in read mode\n");
      return 0;
   }
   fread(&emp, sizeof(Employee), 1, file);
```

```
    fclose(file);

    printf("Name: %s\nDepartment: %s\nEid: %d\nSalary: %.2f\nAge: %d\n",
           emp.name, emp.department, emp.eid, emp.salary, emp.age);

    return 0;
}
```

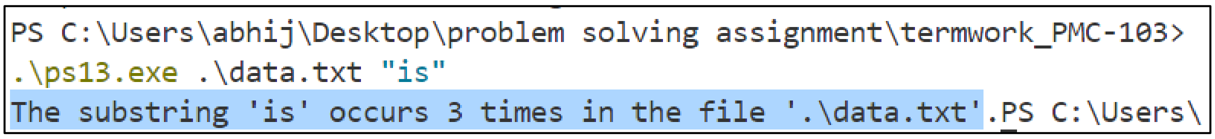
Output



```
Name: Gagandeep
Department: Engineering
Eid: 101
Salary: 60000.00
Age: 30
```

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

int main(int argc, char *argv[]) {
    if (argc != 3) {
        printf("Usage: %s <filename> <substring>\n", argv[0]);
        return 1;
    }

    FILE *file;
    char *filename = argv[1];
    char *substring = argv[2];
    char line[256];
    int count = 0;

    // Open file
    file = fopen(filename, "r");
    if (file == NULL) {
        printf("Unable to open file %s\n", filename);
        return 1;
    }

    // Search for the substring
    while (fgets(line, sizeof(line), file)) {
        if (strstr(line, substring) != NULL)
            count++;
    }
    fclose(file);

    printf("The substring '%s' occurs %d times in the file '%s'.\n",
           substring, count, filename);

    return 0;
}
```

Output:



```
PS C:\Users\abhij\Desktop\problem solving assignment\termwork_PMC-103>
.\ps13.exe .\data.txt "is"
The substring 'is' occurs 3 times in the file '.\data.txt'.PS C:\Users\
```