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Assignment-1

Q1. Write a C++ program to implement recursive and non-recursive

a) Linear search

-:Recursive Program:-

```
#include<iostream>
#include<conio.h>
using namespace std;
int Linear(int array[],int key,int size)
{
    size=size-1;
    if(size <0) {
        return -1;
    } else if(array[size]==key) {
        cout<<"Key Found in Array at index:"<<size;
        return 1;
    } else
    {
        return Linear(array,key,size);
    }
}

int main()
{
    cout<<"Enter The Size Of Array: ";
    int size;
    cin>>size;
    int array[size], key,i;

    // Taking Input In Array

    for (int j=0;j<size;j++) {
        cout<<"Enter "<<j<<" Element : ";
        cin>>array[j];
    }
    //Your Entered Array Is
    for (int a=0;a<size;a++)
    {
        cout<<"array[ "<<a<<" ] = ";
        cout<<array[a]<<endl;
    }
    cout<<"Enter Key To Search in Array: ";
    cin>>key;
    int result;

    result=Linear(array,key,size--);
```

```

    if(result!=1) {
        cout<<"Key NOT Found in Array ";
    }
    getch();
    return 0;
}

}

```

Output:-

```

Enter The Size Of Array: 5
Enter 0 Element : 11
Enter 1 Element : 16
Enter 2 Element : 18
Enter 3 Element : 21
Enter 4 Element : 35

```

array[0]	=	11
array[1]	=	16
array[2]	=	18
array[3]	=	21
array[4]	=	35

```

Enter Key To Search in Array: 21
Key Found in Array at index:3

```

-:Non-recusive Program:-

```

#include<iostream>
#include<conio.h>
using namespace std;

int Linear(int array[],int key,int size)
{ for(int i=0;i<size;i++)
{
    if(array[i]==key)
    {
        cout<<"Key Found in Array at index:"<<i;
        return 1;
        break;
    }
}
}

```

```

int main() {
    cout<<"Enter The Size Of Array: ";
    int size;

    cin>>size;
    int array[size], key,i;

    // Taking Input In Array

    for (int j=0;j<size;j++) {
        cout<<"Enter "<<j<<" Element : ";
        cin>>array[j];
    }
    //Your Entered Array Is

    for (int a=0;a<size;a++)
    {
        cout<<"array[ "<<a<<" ] = ";
        cout<<array[a]<<endl;
    }
    cout<<"Enter Key To Search in Array: ";
    cin>>key;
    int result;
    result=Linear(array,key,size);
    if(result!=1) {
        cout<<"Key NOT Found in Array ";
    }
    getch();
    return 0;
}

```

Output:-

```

Enter The Size Of Array: 5
Enter 0 Element : 21
Enter 1 Element : 54
Enter 2 Element : 65
Enter 3 Element : 78
Enter 4 Element : 91

```

array[0]	=	21
array[1]	=	54
array[2]	=	65
array[3]	=	78
array[4]	=	91

Enter Key To Search in Array: 65

Key Found in Array at index:2

b)Binary search.

-:Recurive Program:-

```
#include <iostream>
#include<conio.h>
using namespace std;
int binarySearch(int A[], int start, int end, int key)
{
    while(start <= end)
    {
        int mid = (start + end)/2;
        if(A[mid] == key)
        {
            return mid;
        }
        else if(A[mid] > key)
        {
            return binarySearch(A, start, mid - 1, key);
        }
        else
        {
            return binarySearch(A, mid + 1, end, key);
        }
    }
    return -1;
}
int main()
{
    int A[] = { 11, 22, 33, 44, 55, 66, 77};
    int n = sizeof(A) / sizeof(A[0]); //n is the size of the array
    int key;
    cout << "Array Elements :--> ";
    for(int i=0; i<n; i++)
        cout << A[i] << " ";
    cout << "\nEnter Key Element to Search :--> ";
    cin >> key;
```

```

int result = binarySearch(A, 0, n - 1, key);
if(result == -1)
{
    cout << "\nElement is not present in array";
}
else
{
    cout << "\nElement is present at index " << result;
}
getch();
return 0;
}

```

Output:-

Array Elements :--> 11 22 33 44 55 66 77

Enter Key Element to Search :--> 44

Element is present at index 3

-:Non-recurive Program:-

```

#include<iostream>
#include<conio.h>
using namespace std; int main()
{
    int i, arr[10], num, first, last, middle;
    cout<<"Enter 10 Elements : ";
    for(i=0; i<10; i++)
        cin>>arr[i];
    cout<<"\nEnter Element to be Search: ";
    cin>>num;
    first = 0;
    last = 9;
    middle = (first+last)/2;
    while(first <= last)
    {
        if(arr[middle]<num)
            first = middle+1;
        else if(arr[middle]==num)
        {
            cout<<"\nThe number, "<<num<<" found at Position "<<middle+1;
            break;
        }
        else
            last = middle-1;
        middle = (first+last)/2;
    }
}

```

```

    }
    if(first>last)
        cout<<"\nThe number, "<<num<<" is not found in given Array";
    cout<<endl;
    getch();
    return 0;
}

```

Output:-

Enter 10 Elements : 11 21 31 41 51 61 71 81 91 101

Enter Element to be Search: 71

The number, 71 found at Position

7

Q2. Write a C++ program to implement Bubble sort.

```

#include <iostream>
#include<conio.h>
using namespace std;
void swap(int *var1, int *var2)
{
    int temp = *var1;
    *var1 = *var2;
    *var2 = temp;
}
//Here we will implement bubbleSort.
void bubbleSort(int arr[], int n)
{
    int i, j;
    for (i = 0; i < n-1; i++)
        //Since, after each iteration rightmost i elements are sorted.
        for (j = 0; j < n-i-1; j++)
            if (arr[j] > arr[j+1])
                swap(&arr[j], &arr[j+1]);
}
// Function to print array.
void display(int arr[], int
size)
{
    int i;

```

```

for (i=0; i < size; i++)
    cout << arr[i] << "\t";

    cout<<endl;
}

//Main function to run the program.
int main()
{
    int array[] = {5, 3, 1, 9, 8, 2, 4,7};
    int size = sizeof(array)/sizeof(array[0]);
    cout<<"Before bubble sort: \n";
    display(array, size);//Calling display function to print unsorted array.
    bubbleSort(array, size);
    cout<<"After bubble sort: \n";
    display(array, size);//Calling display function to print sorted array.
    getch();
    return 0;
}

```

Output:-

Before bubble sort:

5 3 1 9 8 2 4 7

After bubble sort:

1 2 3 4 5 7 8 9

Q3. Write a C++ program to implement Selection sort.

```

#include<iostream>
#include<conio.h>
using namespace std;

```

//Display function to print values.

```

void display(int array[], int size)
{
    int i;
    for (i = 0; i < size; i++)
        cout << array[i] << "\t";
    cout << "\n";
}

```

```

//The main function to drive other functions.
int main()
{
    int array[] = {5, 3, 1, 9, 8, 2, 4, 7};
    int size = sizeof(array)/sizeof(array[0]);
    cout << "Before sorting: \n";
    display(array, size);
    int i, j, min_idx,temp;

    //Loop to iterate elements of array.
    for (i = 0; i < size-1; i++)
    {
        //Here we try to find the min element in array.
        min_idx = i;
        for (j = i+1; j < size; j++)
        {
            if (array[j] < array[min_idx])
                min_idx = j;
        }

        // Here we interchange the min element with first one.
        temp = array[min_idx];
        array[min_idx] = array[i];
        array[i] = temp;
    }

    cout << "After sorting: \n";
    display(array, size); //Using dispaly function to print sorted array.
    getch();
    return 0;
}

```

Output:-

```

Before sorting:
5   3   1   9   8   2   4   7
After sorting:
1   2   3   4   5   7   8   9

```

Q4. Write a C++ program to implement quick sort.

```

#include<iostream>
#include<conio.h>

using namespace std;
//Function to swap two elements.
Void swap(int* x, int* y)
{

```

```

int temp = *x;
*x = *y;
*y = temp;
}

/* Partition function to do Partition
elements on the left side of pivot elements would be smaller than pivot
elements on the right side of pivot would be greater than the pivot
*/
int partition (int array[], int low, int high)
{
    //Pivot element selected as right most element in array each time.
    Int pivot = array[high];
    int swapIndex = (low - 1); //swapping index.
    For (int j = low; j <= high- 1; j++)
    {
        //Check if current element is smaller than pivot element.
        If (array[j] < pivot)
        {
            swapIndex++; //increment swapping index.
            Swap(&array[swapIndex], &array[j]);
        }
    }
    swap(&array[swapIndex + 1], &array[high]);
    return (swapIndex + 1);
}

//Recursive function to apply uicksort
void uicksort(int array[], int low, int high)
{
    if (low < high)
    {
        /* indexPI is partitioning index, partition() function will
        return index of partition */
        int indexPI = partition(array, low, high);

        uicksort(array, low, indexPI - 1); //left partition
        uicksort(array, indexPI + 1, high); //right partition
    }
}

//Function to display the array
void display(int array[], int size)
{
    int I;
    for (i=0; I < size; i++)
        cout<< array[i] << " ";
}

```

```

}

//Main function to run the program
int main()
{
    int array[] = {7, 9, 1, 3, 5, 2, 6, 0, 4, 8};
    int size = sizeof(array)/sizeof(array[0]);
    cout<<"Before Sorting: \n";
    display(array, size);
    quicksort(array, 0, size-1); cout<<"\n";
    cout<<"After Sorting: \n"; display(array, size);
    getch();
    return 0;
}

```

Output:-

Before Sorting:
7 9 1 3 5 2 6 0 4 8

After Sorting:
0 1 2 3 4 5 6 7 8 9

Q5. Write a C++ program to implement insertion sort

```

#include<iostream>
#include<conio.h>
using namespace std;

//Function to print
array.
void display(int arr[], int size)
{
    int i;
    for (i = 0; i < size; i++)
        cout << arr[i] << "\t";
    cout << "\n";
}

//Main function to run the program.
int main()
{
    int array[] = {5, 3, 1, 9, 8, 2, 4, 7};
    int size = sizeof(array)/sizeof(array[0]);
    cout << "Before Insertion sort: \n";
    display(array, size);
    int i, key, j;
}

```

```

for (i = 1; i < size; i++) { key = array[i]; j = i - 1;
/* Here the elements in b/w arrary[i-1 & 0] which are greater than key are moved ahead by 1
position each*/
    while (j >= 0 && array[j] > key)
    {
        array[j + 1] = array[j];
        j = j - 1; // moving backwards
    }

    // placing key item now
    array[j + 1] = key;
}
cout << "After Insertion sort: \n";
display(array, size);
getch();
return 0;
}

```

Output:-

Before Insertion sort:

5 3 1 9 8 2 4 7

After Insertion sort:

1 2 3 4 5 7 8 9

Assignment-2

Q1. Write a C++ program to implement the Stack ADT using an array

```
#include<iostream>
#include<conio.h>
using namespace std;
class Stack
{
public:
    int top;
    int maxSize;
    int* array;
    Stack(int max)
    {
        top=-1;
        maxSize=max;
        array=new int[max];
    }
    int isFull()
    {
        if(top==maxSize-1)
            cout<<"Will not be able to push maxSize reached"=<<endl;
        return top==maxSize-1;
    }

    int isEmpty()
    {
        if(top===-1)
            cout<<"Will not be able to pop minSize reached"=<<endl;
        return top===-1;
    }

    void push(int item)
    {
        if(isFull()) return;
        array[++top]=item;
        cout<<"We have pushed "<<item<<" to stack"=<<endl;
    }

    int pop()
    {
        if(isEmpty()) return INT_MIN;
        return array[top--];
    }

    int peek()
    {
        if(isEmpty()) return INT_MIN;
        return array[top];
    }
}
```

```
};

int main()
{
    Stack stack(10);
    stack.push(5);
    stack.push(10);
    stack.push(15);
    int flag=1;
    while(flag)
    {
        if(!stack.isEmpty())
            cout<<"We have popped "<< stack.pop()<<" from stack" << endl;
        else
            cout<<"Can't Pop stack must be empty\n";
        flag=0;
    }
    getch();
    return 0;
}
```

Output:-

```
We have pushed 5 to stack
We have pushed 10 to stack
We have pushed 15 to stack
We have popped 15 from stack
```

Q2. Write a C++ program to implement the Queue ADT using an array.

```
#include <iostream>
using namespace std;
class Queue {
private:
    static const int MAX_SIZE = 100; // Maximum size of the queue
    int arr[MAX_SIZE];
    int front, rear;
public:
    Queue() : front(-1), rear(-1) {}
    bool isEmpty() { return front == -1 && rear == -1; }
    bool isFull() { return (rear + 1) % MAX_SIZE == front; }
    void enqueue(int value) {
        if (isFull()) {
            cout << "Queue is full. Cannot enqueue.\n";
            return;
        }
        if (isEmpty()) {front = rear = 0; }
        else {rear = (rear + 1) % MAX_SIZE; }
        arr[rear] = value;
        cout << value << " enqueue to the queue.\n";
    }
    void dequeue() {
        if (isEmpty()) {
            cout << "Queue is empty. Cannot dequeue.\n";
            return;
        }
        cout << arr[front] << " dequeued from the queue.\n";
        if (front == rear) { front = rear = -1; // Reset front and rear for an empty queue }
        else { front = (front + 1) % MAX_SIZE; }
    }
    int frontValue() {
        if (isEmpty()) {
            cout << "Queue is empty. No front value.\n";
            return -1; // Assuming -1 as an indicator of an empty queue
        }
        return arr[front];
    }
};
int main() {
    Queue myQueue;
    myQueue.enqueue(10);
    myQueue.enqueue(20);
    myQueue.enqueue(30);
    cout << "Front of the queue: " << myQueue.frontValue() << std::endl;
    myQueue.dequeue();
    myQueue.dequeue();
```

```
cout << "Is the queue empty? " << (myQueue.isEmpty() ? "Yes" : "No") << std::endl;
return 0;
}
```

Output:-

- 1) Insert element to queue
- 2) Delete element from queue
- 3) Display all the elements of queue
- 4) Exit

Enter your choice :

1

Insert the element in queue :

10

Enter your choice :

1

Insert the element in queue :

20

Enter your choice :

1

Insert the element in queue :

30

Enter your choice :

2

Element deleted from queue is : 10

Enter your choice :

3

Queue elements are : 20 30

Enter your choice :

4

Exit

Q3. Write a C++ program to implement list ADT to perform the following operations.

- a) Insert an element into a list.
- b) Delete an element from a list.
- c) Search for a key element in a list
- d) count number of nodes in a list.

```
#include <iostream>
Using namespace std;
class Node {
public:
    int data;
    Node* next;
    Node(int value) {
        This->data=value;
        This->next=NULL
    }
};
class LinkedList {
private:
    Node* head;
public:
    LinkedList() {
        This->head=NULL
    }
    // Function to insert an element into the list
    void insertElement(int value) {
        Node* newNode = new Node(value);
        newNode->next = head;
        head = newNode;
        cout << "Element " << value << " inserted into the list." << endl;
    }
    // Function to delete an element from the list
    void deleteElement(int value) {
        Node* current = head;
        Node* prev = NULL;
        while (current != NULL && current->data != value) {
            prev = current;
            current = current->next;
        }
        if (current == NULL) {
            cout << "Element " << value << " not found in the list." << endl;
            return;
        }
        if (prev == NULL) {
            head = current->next;
        } else {
            prev->next = current->next;
        }
    }
}
```

```

    prev->next = current->next;
}
delete current;
cout << "Element " << value << " deleted from the list." << endl;
}

// Function to search for a key element in the list
bool searchElement(int value) {
    Node* current = head;
    while (current != NULL) {
        if (current->data == value) {
            cout << "Element " << value << " found in the list." << endl;
            return true;
        }
        current = current->next;
    }
    cout << "Element " << value << " not found in the list." << endl;
    return false;
}

// Function to count the number of nodes in the list
int countNodes() {
    Node* current = head;
    int count = 0;
    while (current != NULL) {
        count++;
        current = current->next;
    }
    return count;
}

int main() {
    LinkedList myList;
    myList.insertElement(10);
    myList.insertElement(20);
    myList.insertElement(30);
    myList.insertElement(40);
    cout << "Number of nodes in the list: " << myList.countNodes() << endl;
    myList.searchElement(20);
    myList.searchElement(50);
    myList.deleteElement(30);
    cout << "Number of nodes in the list: " << myList.countNodes() << endl;
    return 0;
}

```

Output:-

Element 10 inserted into the list.
 Element 20 inserted into the list.
 Element 30 inserted into the list.

Element 40 inserted into the list.

Number of nodes in the list: 4

Element 20 found in the list.

Element 50 not found in the list.

Element 30 deleted from the list.

Number of nodes in the list: 3

Q4. Write C++ programs to implement the Stack ADT using a singly linked list.

```
#include<iostream>
#include<conio.h>
using namespace std;
class node
{ public:
    int data;
    node* next;
};
struct node* head = NULL;
void push(int x)
{
    node* temp;
    temp = new node();
    temp->data = x;
    temp->next = head;
    head = temp;
}
bool isEmpty()
{
    if (head == NULL)
        return true;
    else
        return false;
}
int top_element()
{
    if (head == NULL)
    {
        cout << "stack is empty" << endl;
    }
    else
        return head->data;
}
void pop()
{
    node* temp;
    if (isEmpty())
    {
        cout << "stack is empty" << endl;
    }
    else
    {
        temp = head;
        head = head->next;
        delete(temp);
    }
}
```

```

}

void print_stack()
{
    struct node* curr;
    if (isEmpty())
    {
        cout << "stack is empty" << endl;
    }
    else
    {
        curr = head;
        cout << "Elements are: ";
        while (curr != NULL)
        {
            cout << curr->data << " ";
            curr = curr->next;
        }
        cout << endl;
    }
}

int main()
{
    push(5);
    push(3);
    push(6);
    print_stack();
    isEmpty();
    cout << "Top: "
        << top_element() << endl;
    pop();
    print_stack();
    cout << "Top: "
        << top_element() << endl;
    getch();
    return 0;
}

```

Output:-

Elements are: 6 3 5

Top: 6

Elements are: 3 5

Top: 3

Q5. Write C++ programs to implement the Queue ADT using a singly linked list.

```
#include<iostream>
#include<conio.h>
using namespace std;
class Node
{
public:
    int data;
    Node *next;
};
void enqueue (Node ** head, int data)
{
    Node *new_node = new Node ();
    // assign data value
    new_node->data = data;
    // change the next node of this new_node
    // to current head of Linked List
    new_node->next = *head;
    //changing the new head to this newly entered node
    *head = new_node;
}
void dequeue (Node ** head)
{
    Node *temp = *head;
    // if there are no nodes in Linked List can't delete
    if (*head == NULL)
    {
        cout << ("Linked List Empty, nothing to delete");
        return;
    }
    // move head to next node
    *head = (*head)->next;
    //cout<< ("Deleted: %d\n", temp->data);
    delete (temp);
}
void display (Node * node)
{
    //as linked list will end when Node is Null
    while (node != NULL)
    {
        cout << node->data << " ";
        node = node->next;
    }
    cout << endl;
}
int main ()
```

```
{  
Node *head = NULL;  
enqueue (&head, 10);  
enqueue (&head, 11);  
enqueue (&head, 12);  
enqueue (&head, 13);  
enqueue (&head, 14);  
enqueue (&head, 15);  
enqueue (&head, 16);  
enqueue (&head, 17);  
enqueue (&head, 18);  
cout << "Queue before deletion: ";  
display (head);  
dequeue (&head);  
cout << endl << "Queue after deletion: ";  
display (head);  
getch();  
return 0;  
}  
}
```

Output:-

Queue before deletion: 18 17 16 15 14 13 12 11 10

Queue after deletion: 17 16 15 14 13 12 11 10

Q6. Write C++ programs to implement the deque (double-ended queue) ADT using a doubly-linked list.

```
#include <iostream>
using namespace std;
struct Node {
    int data;
    Node *prev, *next;
    static Node* getnode(int data)
    {
        Node* newNode = new Node;
        newNode->data = data;
        newNode->prev = newNode->next = NULL;
        return newNode;
    }
};

// A structure to represent a deque
class Deque {
    Node* front;
    Node* rear;
    int Size;
public:
    Deque()
    {
        front = rear = NULL;
        Size = 0;
    }
    // Operations on Deque
    void insertFront(int data);
    void insertRear(int data);
    void deleteFront();
    void deleteRear();
    int getFront();
    int getRear();
    int size();
    bool isEmpty();
    void erase();
};

// Function to check whether deque
// is empty or not
bool Deque::isEmpty() { return (front == NULL); }
int Deque::size() { return Size; }
// Function to insert an element
// at the front end
void Deque::insertFront(int data)
{
    Node* newNode = Node::getnode(data);
    // If true then new element cannot be added
```

```

// and it is an 'Overflow' condition
if (newNode == NULL)
    cout << "OverFlow\n";
else {
    // If deque is empty
    if (front == NULL)
        rear = front = newNode;

    // Inserts node at the front end
    else {
        newNode->next = front;
        front->prev = newNode;
        front = newNode;
    }
    // Increments count of elements by 1
    Size++;
}

// Function to insert an element
// at the rear end
void Deque::insertRear(int data)
{
    Node* newNode = Node::getnode(data);
    // If true then new element cannot be added
    // and it is an 'Overflow' condition
    if (newNode == NULL)
        cout << "OverFlow\n";
    else {
        // If deque is empty
        if (rear == NULL)
            front = rear = newNode;
        // Inserts node at the rear end
        else {
            newNode->prev = rear;
            rear->next = newNode;
            rear = newNode;
        }
        Size++;
    }
}

// Function to delete the element
// from the front end
void Deque::deleteFront()
{
    // If deque is empty then
    // 'Underflow' condition
    if (isEmpty())

```

```

        cout << "UnderFlow\n";
    // Deletes the node from the front end and makes
    // the adjustment in the links
    else {
        Node* temp = front;
        front = front->next;
        // If only one element was present
        if (front == NULL)
            rear = NULL;
        else
            front->prev = NULL;
        delete(temp);
        // Decrements count of elements by 1
        Size--;
    }
}

// Function to delete the element
// from the rear end
void Deque::deleteRear()
{
    // If deque is empty then
    // 'Underflow' condition
    if (isEmpty())
        cout << "UnderFlow\n";
    // Deletes the node from the rear end and makes
    // the adjustment in the links
    else {
        Node* temp = rear;
        rear = rear->prev;
        if (rear == NULL)
            front = NULL;
        else
            rear->next = NULL;
        delete(temp);
        Size--;
    }
}

// Function to return the element
// at the front end
int Deque::getFront()
{
    // If deque is empty, then returns
    // garbage value
    if (isEmpty())
        return -1;
    return front->data;
}

int Deque::getRear()

```

```

{
    // If deque is empty, then returns
    // garbage value
    if (isEmpty())
        return -1;
    return rear->data;
}
void Deque::erase()
{
    rear = NULL;
    while (front != NULL) {
        Node* temp = front;
        front = front->next;
        delete(temp);
    }
    Size = 0;
}
int main()
{
    Deque dq;
    cout << "Insert element '5' at rear end\n";
    dq.insertRear(5);
    cout << "Insert element '10' at rear end\n";
    dq.insertRear(10);
    cout << "Rear end element: " << dq.getRear() << endl;
    dq.deleteRear();
    cout << "After deleting rear element new rear"
        << " is: " << dq.getRear() << endl;
    cout << "Inserting element '15' at front end \n";
    dq.insertFront(15);
    cout << "Front end element: " << dq.getFront() << endl;
    cout << "Number of elements in Deque: " << dq.size()
        << endl;
    dq.deleteFront();
    cout << "After deleting front element new "
        << "front is: " << dq.getFront() << endl;
    return 0;
}

```

Output:-

```

Insert element '5' at rear end
Insert element '10' at rear end
Rear end element: 10
After deleting rear element new rear is: 5
Inserting element '15' at front end
Front end element: 15
Number of elements in Deque: 2

```

After deleting front element new front is: 5

Assignment-3

Q1.) Write a C++ program to implement the Merge Sort.

```
#include <iostream>
using namespace std;
void merge(int arr[], int p, int q, int r) {
    int n1 = q - p + 1;
    int n2 = r - q;
    int L[n1], M[n2];
    for (int i = 0; i < n1; i++)
        L[i] = arr[p + i];
    for (int j = 0; j < n2; j++)
        M[j] = arr[q + 1 + j];
    int i, j, k;
    i = 0;
    j = 0;
    k = p;
    while (i < n1 && j < n2) {
        if (L[i] <= M[j]) {
            arr[k] = L[i];
            i++;
        } else {
            arr[k] = M[j];
            j++;
        }
        k++;
    }
    while (i < n1) {
        arr[k] = L[i];
        i++;
        k++;
    }
    while (j < n2) {
        arr[k] = M[j];
        j++;
        k++;
    }
}
void mergeSort(int arr[], int l, int r) {
    if (l < r) {
        int m = l + (r - l) / 2;
        mergeSort(arr, l, m);
        mergeSort(arr, m + 1, r);
        merge(arr, l, m, r);
    }
}
void printArray(int arr[], int size) {
    for (int i = 0; i < size; i++)
```

```
cout << arr[i] << " ";
cout << endl;
}
int main() {
int arr[] = {6, 5, 12, 10, 9, 1};
int size = sizeof(arr) / sizeof(arr[0]);
mergeSort(arr, 0, size - 1);
cout << "Sorted array: \n";
printArray(arr, size);
return 0;}
```

Output:-

Sorted array:

1 5 6 9 10 12

Q2. Write a C++ program to implement the Heap Sort.

```
#include <iostream>
using namespace std;

void heapify(int arr[], int n, int i) {
    int largest = i;
    int left = 2 * i + 1;
    int right = 2 * i + 2;

    if (left < n && arr[left] > arr[largest])
        largest = left;
    if (right < n && arr[right] > arr[largest])
        largest = right;
    if (largest != i) {
        swap(arr[i], arr[largest]);
        heapify(arr, n, largest);
    }
}

void heapSort(int arr[], int n) {
    for (int i = n / 2 - 1; i >= 0; i--)
        heapify(arr, n, i);
    for (int i = n - 1; i >= 0; i--) {
        swap(arr[0], arr[i]);

        heapify(arr, i, 0);
    }
}

void printArray(int arr[], int n) {
    for (int i = 0; i < n; ++i)
        cout << arr[i] << " ";
    cout << "\n";
}

int main() {
    int arr[] = {1, 12, 9, 5, 6, 10};
    int n = sizeof(arr) / sizeof(arr[0]);
    heapSort(arr, n);
    cout << "Sorted array is \n";
    printArray(arr, n);
    return 0;
}

Output:-
Sorted array is
1 5 6 9 10 12
```

Q3 Write a C++ program to perform the following operations.

- a) Insert an element into a binary search tree.
- b) Delete an element from a binary search tree.
- c) Search for a key element in a binary search tree.

```
#include <iostream>
```

```
using namespace std;
```

```
class BST {  
    int data;  
    BST *left, *right;  
  
public:  
    BST();  
    BST(int);  
    BST* Insert(BST*, int);  
    void Inorder(BST*);  
    bool search(BST*, int);  
    void searchData(BST*);  
    bool deleteD(BST* root, int val);  
};  
BST::BST(){  
    data=0;  
    left=NULL;  
    right=NULL;  
}  
BST::BST(int value)  
{  
    data = value;  
    left = right = NULL;  
}  
BST* BST::Insert(BST* root, int value)  
{  
    if (!root) {  
        return new BST(value);  
    }  
    if (value > root->data) {  
        root->right = Insert(root->right, value);  
    }  
    else if (value < root->data) {  
        root->left = Insert(root->left, value);  
    }  
    return root;  
}  
// Inorder traversal function.  
// This gives data in sorted order.
```

```
void BST::Inorder(BST* root)  
{
```

```

        if (!root) {
            return;
        }
        Inorder(root->left);
        cout << root->data << " ";
        Inorder(root->right);
    }
    bool BST::search(BST* root, int data)
    {

        // Base Cases: root is null or key is present at root
        if (root == NULL || root->data == data)
            return root;

        // Key is greater than root's key
        if (root->data < data)
            return search(root->right, data);

        // Key is smaller than root's key
        return search(root->left, data);
    }
    void BST::searchData(BST* root){
        int val;
        cout<<endl<<"Enter the value for search"<<endl;
        cin>>val;
        if (search(root, val) == NULL)
            cout << endl << val << " not found" << endl;
        else
            cout << endl << val << " found" << endl;
    }
    bool BST::deleteD(BST* root, int val)
    {
        // Base case
        if (root == NULL)
            return root;

        // Recursive calls for ancestors of
        // node to be deleted
        if (root->data > val) {
            root->left = (BST*)deleteD(root->left, val);
            return root;
        }
        else if (root->data < val) {
            root->right = (BST*)deleteD(root->right, val);
            return root;
        }

        // We reach here when root is the node
    }

```

```

// to be deleted.

// If one of the children is empty
if (root->left == NULL) {
    BST* temp = root->right;
    delete root;
    return temp;
}
else if (root->right == NULL) {
    BST* temp = root->left;
    delete root;
    return temp;
}

// If both children exist
else {

    BST* succParent = root;

    // Find successor
    BST* succ = root->right;
    while (succ->left != NULL) {
        succParent = succ;
        succ = succ->left;
    }

    // Delete successor. Since successor
    // is always left child of its parent
    // we can safely make successor's right
    // right child as left of its parent.
    // If there is no succ, then assign
    // succ->right to succParent->right
    if (succParent != root)
        succParent->left = succ->right;
    else
        succParent->right = succ->right;
    // Copy Successor Data to root
    root->data = succ->data;
    // Delete Successor and return root
    delete succ;
    return root;
}

int main()
{
    BST b, *root = NULL;
    root = b.Insert(root, 50);
    b.Insert(root, 30);
}

```

```
b.Insert(root, 20);
b.Insert(root, 40);
b.Insert(root, 70);
b.Insert(root, 60);
b.Insert(root, 80);

b.Inorder(root);
b.searchData(root);
int val=30;
cout<<endl<<"Delete a Leaf Node :30"<<endl;
b.deleteD(root,val);
return 0;
}
```

Output:-

20 30 40 50 60 70 80

Enter the value for search

20

20 found

Delete a Leaf Node :30

Q4. Write C++ programs that use recursive functions to traverse the given binary tree in.

a) Preorder

```
#include<iostream>
#include <stdlib.h>
using namespace std;
struct node {
    int data;
    struct node *left;
    struct node *right;
};

struct node *createNode(int val) {
    struct node *temp = (struct node *)malloc(sizeof(struct node));
    temp->data = val;
    temp->left = temp->right = NULL;
    return temp;
}

void preorder(struct node *root) {
    if (root != NULL) {
        cout<<root->data<<" ";
        preorder(root->left);
        preorder(root->right);
    }
}

struct node* insertNode(struct node* node, int val) {
    if (node == NULL) return createNode(val);
    if (val < node->data)
        node->left = insertNode(node->left, val);
    else if (val > node->data)
        node->right = insertNode(node->right, val);
    return node;
}

int main() {
    struct node *root = NULL;
    root = insertNode(root, 4);
    insertNode(root, 5);
    insertNode(root, 2);
    insertNode(root, 9);
    insertNode(root, 1);
    insertNode(root, 3);
    cout<<"Pre-Order traversal of the Binary Search Tree is: ";
    preorder(root);
    return 0;
}
```

Output:-

Pre-Order traversal of the Binary Search Tree is: 4 2 1 3 5 9

b) Inorder

```
#include<iostream>
#include <stdlib.h>
using namespace std;
struct node {
    int data;
    struct node *left;
    struct node *right;
};
struct node *createNode(int val) {
    struct node *temp = (struct node *)malloc(sizeof(struct node));
    temp->data = val;
    temp->left = temp->right = NULL;
    return temp;
}
void inorder(struct node *root) {
    if (root != NULL) {
        inorder(root->left);
        cout<<root->data<<" ";
        inorder(root->right);
    }
}
struct node* insertNode(struct node* node, int val) {
    if (node == NULL) return createNode(val);
    if (val < node->data)
        node->left = insertNode(node->left, val);
    else if (val > node->data)
        node->right = insertNode(node->right, val);
    return node;
}
int main() {
    struct node *root = NULL;
    root = insertNode(root, 4);
    insertNode(root, 5);
    insertNode(root, 2);
    insertNode(root, 9);
    insertNode(root, 1);
    insertNode(root, 3);
    cout<<"In-Order traversal of the Binary Search Tree is: ";
    inorder(root);
    return 0;
}
```

Output:-

In-Order traversal of the Binary Search Tree is: 1 2 3 4 5 9

c) Postorder

```
#include<iostream>
#include <stdlib.h>
using namespace std;
struct node {
    int data;
    struct node *left;
    struct node *right;
};
struct node *createNode(int val) {
    struct node *temp = (struct node *)malloc(sizeof(struct node));
    temp->data = val;
    temp->left = temp->right = NULL;
    return temp;
}
void postorder(struct node *root) {
    if (root != NULL) {
        postorder(root->left);
        postorder(root->right);
        cout<<root->data<< " ";
    }
}
struct node* insertNode(struct node* node, int val) {
    if (node == NULL) return createNode(val);
    if (val < node->data)
        node->left = insertNode(node->left, val);
    else if (val > node->data)
        node->right = insertNode(node->right, val);
    return node;
}
int main() {
    struct node *root = NULL;
    root = insertNode(root, 4);
    insertNode(root, 5);
    insertNode(root, 2);
    insertNode(root, 9);
    insertNode(root, 1);
    insertNode(root, 3);
    cout<<"Post-Order traversal of the Binary Search Tree is: ";
    postorder(root);
    return 0;
}
```

Output:-

Post-Order traversal of the Binary Search Tree is: 1 3 2 9 5 4

Q5. Write a C++ program to perform the following operations

- a) Insertion into a B-tree
- b) Deletion from a B-tree

```
#include <iostream>
using namespace std;
class BTreeNode {
    int *keys;
    int t;
    BTreeNode **C;
    int n;
    bool leaf;
    public:
        BTreeNode(int _t, bool _leaf);
        void traverse();
        int findKey(int k);
        void insertNonFull(int k);
        void splitChild(int i, BTreeNode *y);
        void deletion(int k);
        void removeFromLeaf(int idx);
        void removeFromNonLeaf(int idx);
        int getPredecessor(int idx);
        int getSuccessor(int idx);
        void fill(int idx);
        void borrowFromPrev(int idx);
        void borrowFromNext(int idx);
        void merge(int idx);
        friend class BTree;
    };
class BTree {
    BTreeNode *root;
    int t;
    public:
        BTree(int _t) {
            root = NULL;
            t = _t;
        }
}
```

```

void traverse() {
    if (root != NULL)
        root->traverse();
}
void insertion(int k);
void deletion(int k);
};

// B tree node
BTreeNode::BTreeNode(int t1, bool leaf1) {
    t = t1;
    leaf = leaf1;
    keys = new int[2 * t - 1];
    C = new BTreeNode *[2 * t];
    n = 0;
}
// Find the key
int BTreeNode::findKey(int k) {
    int idx = 0;
    while (idx < n && keys[idx] < k)
        ++idx;
    return idx;
}
// Deletion operation
void BTreeNode::deletion(int k) {
    int idx = findKey(k);
    if (idx < n && keys[idx] == k) {
        if (leaf)
            removeFromLeaf(idx);
        else
            removeFromNonLeaf(idx);
    } else {
        if (leaf) {
            cout << "The key " << k << " is does not exist in the tree\n";
            return;
        }
        bool flag = ((idx == n) ? true : false);
        if (C[idx]->n < t)

```

```

        fill(idx);
        if (flag && idx > n)
            C[idx - 1]->deletion(k);
        else
            C[idx]->deletion(k);
    }
    return;
}
// Remove from the leaf
void BTreeNode::removeFromLeaf(int idx) {
    for (int i = idx + 1; i < n; ++i)
        keys[i - 1] = keys[i];
    n--;
    return;
}
// Delete from non leaf node
void BTreeNode::removeFromNonLeaf(int idx) {
    int k = keys[idx];
    if (C[idx]->n >= t) {
        int pred = getPredecessor(idx);
        keys[idx] = pred;
        C[idx]->deletion(pred);
    }
    else if (C[idx + 1]->n >= t) {
        int succ = getSuccessor(idx);
        keys[idx] = succ;
        C[idx + 1]->deletion(succ);
    }
    else {
        merge(idx);
        C[idx]->deletion(k);
    }
    return;
}
int BTreeNode::getPredecessor(int idx) {
    BTreeNode *cur = C[idx];
    while (!cur->leaf)

```

```

    cur = cur->C[cur->n];
    return cur->keys[cur->n - 1];
}

int BTreeNode::getSuccessor(int idx) {
    BTreeNode *cur = C[idx + 1];
    while (!cur->leaf)
        cur = cur->C[0];
    return cur->keys[0];
}

void BTreeNode::fill(int idx) {
    if (idx != 0 && C[idx - 1]->n >= t)
        borrowFromPrev(idx);
    else if (idx != n && C[idx + 1]->n >= t)
        borrowFromNext(idx);
    else {
        if (idx != n)
            merge(idx);
        else
            merge(idx - 1);
    }
    return;
}

// Borrow from previous
void BTreeNode::borrowFromPrev(int idx) {
    BTreeNode *child = C[idx];
    BTreeNode *sibling = C[idx - 1];
    for (int i = child->n - 1; i >= 0; --i)
        child->keys[i + 1] = child->keys[i];
    if (!child->leaf) {
        for (int i = child->n; i >= 0; --i)
            child->C[i + 1] = child->C[i];
    }
    child->keys[0] = keys[idx - 1];
    if (!child->leaf)
        child->C[0] = sibling->C[sibling->n];
    keys[idx - 1] = sibling->keys[sibling->n - 1];
    child->n += 1;
}

```

```

        sibling->n -= 1;
        return;
    }
    // Borrow from the next
    void BTreeNode::borrowFromNext(int idx) {
        BTreeNode *child = C[idx];
        BTreeNode *sibling = C[idx + 1];
        child->keys[(child->n)] = keys[idx];
        if (!(child->leaf))
            child->C[(child->n) + 1] = sibling->C[0];
        keys[idx] = sibling->keys[0];
        for (int i = 1; i < sibling->n; ++i)
            sibling->keys[i - 1] = sibling->keys[i];
        if (!sibling->leaf) {
            for (int i = 1; i <= sibling->n; ++i)
                sibling->C[i - 1] = sibling->C[i];
        }
        child->n += 1;
        sibling->n -= 1;
        return;
    }
    // Merge
    void BTreeNode::merge(int idx) {
        BTreeNode *child = C[idx];
        BTreeNode *sibling = C[idx + 1];
        child->keys[t - 1] = keys[idx];
        for (int i = 0; i < sibling->n; ++i)
            child->keys[i + t] = sibling->keys[i];
        if (!child->leaf) {
            for (int i = 0; i <= sibling->n; ++i)
                child->C[i + t] = sibling->C[i];
        }
        for (int i = idx + 1; i < n; ++i)
            keys[i - 1] = keys[i];
        for (int i = idx + 2; i <= n; ++i)
            C[i - 1] = C[i];
        child->n += sibling->n + 1;
    }

```

```

n--;
delete (sibling);
return;
}
// Insertion operation
void BTree::insertion(int k) {
if (root == NULL) {
root = new BTreeNode(t, true);
root->keys[0] = k;
root->n = 1;
} else {
if (root->n == 2 * t - 1) {
BTreeNode *s = new BTreeNode(t, false);
s->C[0] = root;
s->splitChild(0, root);
int i = 0;
if (s->keys[0] < k)
i++;
s->C[i]->insertNonFull(k);
root = s;
} else
root->insertNonFull(k);
}
}
// Insertion non full
void BTreeNode::insertNonFull(int k) {
int i = n - 1;
if (leaf == true) {
while (i >= 0 && keys[i] > k) {
keys[i + 1] = keys[i];
i--;
}
keys[i + 1] = k;
n = n + 1;
} else {
while (i >= 0 && keys[i] > k)
i--;
}
}

```

```

if (C[i + 1]->n == 2 * t - 1) {
    splitChild(i + 1, C[i + 1]);
    if (keys[i + 1] < k)
        i++;
}
C[i + 1]->insertNonFull(k);
}

// Split child
void BTreeNode::splitChild(int i, BTreeNode *y) {
    BTreeNode *z = new BTreeNode(y->t, y->leaf);
    z->n = t - 1;
    for (int j = 0; j < t - 1; j++)
        z->keys[j] = y->keys[j + t];
    if (y->leaf == false) {
        for (int j = 0; j < t; j++)
            z->C[j] = y->C[j + t];
    }
    y->n = t - 1;
    for (int j = n; j >= i + 1; j--)
        C[j + 1] = C[j];
    C[i + 1] = z;
    for (int j = n - 1; j >= i; j--)
        keys[j + 1] = keys[j];
    keys[i] = y->keys[t - 1];
    n = n + 1;
}
// Traverse
void BTreeNode::traverse() {
    int i;
    for (i = 0; i < n; i++) {
        if (leaf == false)
            C[i]->traverse();
        cout << " " << keys[i];
    }
    if (leaf == false)
        C[i]->traverse();
}

```

```

}

// Delete Operation
void BTree::deletion(int k) {
    if (!root) {
        cout << "The tree is empty\n";
        return;
    }
    root->deletion(k);
    if (root->n == 0) {
        BTreeNode *tmp = root;
        if (root->leaf)
            root = NULL;
        else
            root = root->C[0];
        delete tmp;
    }
    return;
}
int main() {
    BTree t(3);
    t.insertion(8);
    t.insertion(9);
    t.insertion(10);
    t.insertion(11);
    t.insertion(15);
    t.insertion(16);
    t.insertion(17);
    t.insertion(18);
    t.insertion(20);
    t.insertion(23);
    cout << "The B-tree is: ";
    t.traverse();
    t.deletion(20);
    cout << "\nThe B-tree is: ";
    t.traverse();
}

```

Output:-

The B-tree is: 8 9 10 11 15 16 17 18 20 23

The B-tree is: 8 9 10 11 15 16 17 18 23

Q6. Write a C++ program to perform the following operations

a) Insertion into an AVL-tree

b) Deletion from an AVL-tree

```
#include<iostream>
using namespace std;
class Node
{
public:
    int key;
    Node *left;
    Node *right;
    int height;
};

int max(int a, int b);
int height(Node *N)
{
    if (N == NULL)
        return 0;
    return N->height;
}

int max(int a, int b)
{
    return (a > b)? a : b;
}

Node* newNode(int key)
{
    Node* node = new Node();
    node->key = key;
    node->left = NULL;
    node->right = NULL;
    node->height = 1;
    return(node);
}

Node *rightRotate(Node *y)
{
    Node *x = y->left;
```

```

Node *T2 = x->right;
x->right = y;
y->left = T2;
y->height = max(height(y->left),height(y->right)) + 1;
x->height = max(height(x->left),height(x->right)) + 1;
return x;
}

Node *leftRotate(Node *x)
{
    Node *y = x->right;
    Node *T2 = y->left;
    y->left = x;
    x->right = T2;
    x->height = max(height(x->left),
                      height(x->right)) + 1;
    y->height = max(height(y->left),
                      height(y->right)) + 1;
    return y;
}

int getBalance(Node *N)
{
    if (N == NULL)
        return 0;
    return height(N->left) -
           height(N->right);
}

Node* insert(Node* node, int key)
{
    if (node == NULL)
        return(newNode(key));
    if (key < node->key)
        node->left = insert(node->left, key);
    else if (key > node->key)
        node->right = insert(node->right, key);
    else
        return node;
    node->height = 1 + max(height(node->left),

```

```

        height(node->right));
int balance = getBalance(node);
if (balance > 1 && key < node->left->key)
    return rightRotate(node);
if (balance < -1 && key > node->right->key)
    return leftRotate(node);
if (balance > 1 && key > node->left->key)
{
    node->left = leftRotate(node->left);
    return rightRotate(node);
}
if (balance < -1 && key < node->right->key)
{
    node->right = rightRotate(node->right);
    return leftRotate(node);
}
return node;
}
Node * minValueNode(Node* node)
{
    Node* current = node;
    while (current->left != NULL)
        current = current->left;
    return current;
}
Node* deleteNode(Node* root, int key)
{
    if (root == NULL)
        return root;
    if ( key < root->key )
        root->left = deleteNode(root->left, key);
    else if( key > root->key )
        root->right = deleteNode(root->right, key);
    else
    {
        if( (root->left == NULL) ||
            (root->right == NULL) )

```

```

{
    Node *temp = root->left ?
        root->left :
        root->right;
    if (temp == NULL)
    {
        temp = root;
        root = NULL;
    }
    else
        *root = *temp;
        delete(temp);
    }
    else
    {
        Node* temp = minValueNode(root->right);
        root->key = temp->key;
        root->right = deleteNode(root->right,
                                  temp->key);
    }
}
if (root == NULL)
return root;
root->height = 1 + max(height(root->left),
                        height(root->right));
int balance = getBalance(root);
if (balance > 1 &&
    getBalance(root->left) >= 0)
    return rightRotate(root);
if (balance > 1 &&
    getBalance(root->left) < 0)
{
    root->left = leftRotate(root->left);
    return rightRotate(root);
}
if (balance < -1 && getBalance(root->right) <= 0)
    return leftRotate(root);

```

```

if (balance < -1 && getBalance(root->right) > 0)
{
    root->right = rightRotate(root->right);
    return leftRotate(root);
}
return root;
}

void preOrder(Node *root)
{
    if(root != NULL)
    {
        cout << root->key << " ";
        preOrder(root->left);
        preOrder(root->right);
    }
}

int main()
{
    Node *root = NULL;
    root = insert(root, 9);
    root = insert(root, 5);
    root = insert(root, 10);
    root = insert(root, 0);
    root = insert(root, 6);
    root = insert(root, 11);
    root = insert(root, -1);
    root = insert(root, 1);
    root = insert(root, 2);
    cout << "Preorder traversal of the "
        "constructed AVL tree is \n";
    preOrder(root);
    root = deleteNode(root, 10);
    cout << "\nPreorder traversal after"
        << " deletion of 10 \n";
    preOrder(root);
    return 0;
}

```

Output:-

Preorder traversal of the constructed AVL tree is

9 1 0 -1 5 2 6 10 11

Preorder traversal after deletion of 10

1 0 -1 9 5 2 6 11

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S.No	Assignment-1	Page No.	Signature
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Q2.	(i)Use ALTER TABLE command to add column DOB Rename Mstatus to MARITAL_STATUS. (ii)Change size of Fname to (+10) from current size and Drop Column EDepartment Explain the commands used above.		
Q3.	Create a department table with fields (DID,D_name,D_location). DEPID field of employee table will Reference DID field of department table prepare either column Level or table level foreign key constraints.		
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Assignment - 3

S.No.	Assignment	Page No.	Signature
1.	<p>Write a query in SQL to list the details of the employees whose salary is more than the salary of DEN.</p> <p>2. Write a query in SQL to list the department where there are no employees.</p> <p>3. Write a query in SQL to find the highest paid employees in the department MARKETING.</p> <p>4. Write a query in SQL to list the employees who joined in 1991 in a designation same as the most senior person of the year 1991.</p> <p>5. Write a query in SQL to list the details of the departments where maximum number of employees working.</p> <p>6. Display all the information of all employees who have the letters D, S, or N in their first name and arrange the result in descending order by salary.</p> <p>7. Display those employees who contain a letter z to their first name and also display their last name, department, city, and state province.</p> <p>8. Display all departments including those where does not have any employee.</p> <p>9. Write a query in SQL to display the first name of all employees including the first name of their manager.</p> <p>10. Display the full name of employee with ID and present country where (s)he is working.</p>		

Assignment – 4

S.No.	Assignment	Page No.	Signature
1.	Create a PL/SQL program to show your name on the console.		
2.	With the help of example the following : i) If and else statement ii) Loop...endloop with while iii) Loop...endloop with for.		
3.	Explain the following Transaction control in PL/SQL : i)SAVEPOINT ii)COMMIT iii)ROLLBACK		
4.	Write a program to show the use of implicit cursor.		
5.	Write a program to show the use of explicit cursor.		
6.	Create a PL/SQL program to raise salary of manager by 1000 and salary of clerk by 500.		
7.	Create a PL/SQL program to check data type or size error and generate an exception is required.		

Assignment - 1

Q 1.) Create table EMPLOYEE (EID, FName, Lname, DOJ, DEPID, E_Department, MgrID, Salary, Gender, Contact, Address, City, State, Pincode, M_Status) AND USE INSERT COMMAND to fill the records.

Ans:

```
create table employee(eid number(2) primary key, fname char(20), lname char(20), doj date, depid number(2), e_department char(30), mgrid number(2), salary number(9,2), gender char(1) check (gender in('f','m','o')), contact number(10) check (contact between 6000000000 and 10000000000), address varchar(50), city char(30), state char(30), pincode number(6), m_status char(1) check (m_status in('y','n'));
```

Output:

Table created.

```
insert into employee values(1,'vikas','raj','02-may-01',1,'web pan testing', NULL, 60000, 'm', 9999999999, '123', 'jodhpur', 'rajasthan', 123456, 'n');
```

```
insert into employee values(2,'dev','raj','02-may- 18', 2, 'testing', NULL, 20000, 'm', 9999999999, '345', 'jodhpur', 'rajasthan', 123456, 'n');
```

```
insert into employee values(3,'vijay','raj','12-may- 01', 2, 'testing', NULL, 60000, 'm', 9999999999, '567', 'jodhpur', 'rajasthan', 123456, 'n');
```

```
insert into employee values(4,'vishnu','raj','03-may-01',3,'digital marketing', NULL, 60000, 'm', 9999999999, '789', 'jodhpur', 'rajasthan', 123456, 'n');
```

```
insert into employee values(5,'david','raj','12-may-11',3,'digital marketing', NULL, 10000, 'm', 9999999999, '098', 'jaipur', 'rajasthan', 123456, 'n');
```

```
insert into employee values(6,'ritik','raj','01-may- 09', 4, 'dba', NULL, 30000, 'm', 9999999999, '876', 'jaipur', 'rajasthan', 123456, 'n');
```

```
insert into employee values(7,'abhinav','raj','12-may- 19', 5, 'networking', NULL, 20000, 'm', 9999999999, '643', 'jaipur', 'rajasthan', 123456, 'n');
```

```
insert into employee values(8,'ramesh','raj','12-may- 12', 6, 'programming', NULL, 20000, 'm', 9999999999, '432', 'jaipur', 'rajasthan', 123456, 'n');
```

row created.

Q2). (i) USE ALTER TABLE COMMAND TO ADD COLUMN DOB RENAME M_status TO MARITAL_STATUS.

Ans:

```
alter table employee add dob date;
```

```
alter table employee rename column m_status to marital_status;
```

output:

Table altered.

(ii) CHANAGE SIZE OF FName TO (+10) FROM CURRENT SIZE AND DROP COLUMN E_Department Explain the commands used above.

Ans:

```
alter table employee modify fname char(30); alter table employee drop column e_department;
```

output:

Table altered.

Q3). Create a department table with fields (DID, D_name, D_location).DEPID field of employee table will Reference DID field of department table prepare either column Level or table level foreign key constraints.

Ans:

```
create table department (did number(2) primary key,d_name char(20),d_location char (30));  
insert into department values(1,'web pantesting','jaipur');  
insert into department values(2,'testing','jodhpur');  
insert into department values(3,'digital marketing','jaipur');  
insert into department values(4,'dba','jaipur');  
insert into department values(5,'networking','jaipur');  
insert into department values(6,'programming','jaipur');  
alter table employee add constraint fk_dep_id foreign key (DEPID) references department(did);
```

output:

Table created.

row created.

Table altered.

Q4). Add a column(if not added) in department table (MgrID/SupID) which is Manger_id or supervisor_id which reference to EID of the Employee table.

Ans:

```
alter table employee add constraint pri_mgr foreign key (mgrid) references employee(eid);
```

output:

Table altered.

Q5). Create a student table and insert 10 records and use DELETE, TRUNCATE and DROP.

Write difference between the commands.

Ans:

```
create table student(id number(2) primary key, name char(30));  
insert into student values(1, 'vikas');  
insert into student values(2, 'vijay');  
insert into student values(3, 'ritik');  
insert into student values(4, 'abhinav');  
insert into student values(5, 'parkash');  
insert into student values(6, 'suraj');  
insert into student values(7, 'devendera');  
insert into student values(8, 'harish');  
insert into student values(9, 'tanuj');  
insert into student values(10, 'rohit');  
delete from student where id=7;  
--delete records with condition  
--or  
--delete from student;  
--delete all records  
truncate table student;  
--delete all records  
--not affect table schema  
  
drop table student;  
--drop table(remove) including all the records
```

Q 6). Display all employee that belong to department no. 2 and 4 and explain about SELECT, FROM and WHERE clause.

Ans:

```
select fname ||"|| lname "name" , depid from employee where depid in('2','4');
```

--select => used for select the entire row,s column(here we are selecting two column)

--from => used for tell the location/point select row/data from (here we telling employee table)

--where => used for conditional statement (here we are telling select only who are working in 2,4 department id)

output:

fname	lname	depid
dev	raj	2
vijay	raj	2
ritik	raj	4

Q 7). Update employee salary by 10% whose salary <=15000.

Ans:

```
update employee set salary=salary + salary*(10/100) where salary <=15000; output:
```

1 row updated.

Q 8). Create a project table which contains project info. And the employee working on the project & also create Necessary relationship and handle multi valued dependencies

Ans:

```
create table project(id number(2) primary key, name char(30), location char(30)); insert into project  
values(1, 'vista', 'jaipur');
```

```
insert into project values(2, 'win11', 'jaipur'); insert into project values(3, 'debian 12', 'jaipur');
```

```
create table pro_working(e_id number(2) references employee(eid), p_id number(2), foreign  
key(p_id) references project(id));
```

```
insert into pro_working values(1, 2); insert into pro_working values(2, 2); insert into pro_working  
values(2, 1);
```

Output:

Table created.

row created.

Assignment – 2

Q 1). Display all the employees details that belongs to department 10.

Ans:

```
select * from employee where DEPID =10;
```

output:

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMISION_PCT	MANAGER_ID
200	Jennifer	Whalen	Jwhalen	8883.9292.222	15-sep-87	AD_SF	4400	-	101

Q 2).Display all the employee who are getting salary between 12000 and 15000.

Ans :

```
select first_name ||' '| last_name as name,salary from employees where salary between 12000 and 15000;
```

output:

Name	Salary
Nancy Greenberg	12000
John Russell	14000
Karen Partners	13500
Alberto Errazuriz	12000
Michael Hartstein	13000
Shelley Higgins	12000

6 rows selected.

Q 3). Display employee that are clerk and managed by e7698.

Ans :

```
select first_name ||' '| last_name as name from employees where manager_id =7698;
```

output:

no rows selected.

Q 4). Display employee of department 10 and 30.

Ans:

```
select first_name ||' '| last_name as name, department_id from employees where department_id in (10,30);
```

Output :

NAME	DEPARTMENT_ID
Jennifer Whalen	10
Den Raphaely	30
Alexander Khoo	30
Shelli Baida	30
Sigal Tobias	30
Guy Himuro	30
Karen Colmenares	30

7 rows selected

Q 5). Display employees those are not getting any commission.

Ans:

```
select distinct first_name ||' '| last_name as name from employees where commission_pct is null;
```

output:

NAME
Lex De Haan
Nancy Greenberg
Shanta Vollman
.....
Alana Walsh

72 rows selected.

Q 6). Display all the employees name along with their jobs.

Ans:

```
select distinct e.first_name ||' '| e.last_name as name,j.job_title "job" from employees e,jobs j  
where e.job_id=j.job_id;
```

output:

NAME	Job
Daniel Faviet	Accountant
John Chen	Accountant
Payam Kaufling	Stock Manager
Shanta Vollman	Stock Manager
.....	

Donald OConnell	Shipping Clerk
Hermann Baer	Public Relations Representative

107 rows returned in 0.00 seconds [CSV Export](#)

Q 7). Display all the employee name having “t” and “r” in their Names.

Ans:

```
select first_name ||' '| last_name as name from employees where first_name like '%t%' or  
first_name like '%r%' order by first_name;
```

output:

NAME
Alberto Errazuriz
Alexander Hunold
Alexander Khoo
Amit Banda
.....

Timothy Gates
Trenna Rajs
Winston Taylor

48 rows returned in 0.00 seconds

Q 8). Display all the employees that are not in department 30.

Ans:

```
select first_name ||' '| last_name as name,department_id from employees where not department_id=30;
```

output:

NAME	DEPARTMENT_ID
Steven King	90
Neena Kochhar	90
Lex De Haan	90
Alexander Hunold	60
Bruce Ernst	60

.....

Susan Mavris	40
Hermann Baer	70
Shelley Higgins	110
William Gietz	110

100 rows returned in 0.00 seconds

Q 9). Display department located in "xxx".

Ans.

```
select DEPARTMENT_NAME from DEPARTMENTS d, LOCATIONS l where d.LOCATION_ID = l.LOCATION_ID and l.CITY='xxx';
```

output:

no data found.

Q 10). Display all employees who are not “salesman” and “clerk”.

Ans:

```
select first_name ||' '| last_name as name,j.job_title from employees e,JOBS j where e.JOB_ID=j.JOB_ID and j.job_title not like '%Clerk%' and j.job_title not like '%Sales Manager%';
```

output:

NAME	JOB_TITLE
Steven King	President
Neena Kochhar	Administration Vice President
Lex De Haan	Administration Vice President
Alexander Hunold	Programmer
Bruce Ernst	Programmer
David Austin	Programmer

.....

Pat Fay	Marketing Representative
Susan Mavris	Human Resources Representative
Hermann Baer	Public Relations Representative
Shelley Higgins	Accounting Manager
William Gietz	Public Accountant

57 rows returned in 0.00 seconds [CSV Export](#)

Q 11). Display all the employees names in lowercase.

Ans:

```
select lower(first_name) ||' '| lower(last_name) as name from employees;
```

output:

NAME
ellen abel
sundar ande
mozhe atkinson
david austin
hermann baer

.....

matthew weiss
jennifer whalen
eleni zlotkey

107 rows returned in 0.00 seconds

Q 12). List the employees name and salary increased by 15% and Expressed by a whole number.

Ans:

```
select first_name ||' '| last_name as name,salary,abs(salary + salary * (15/100)) as "salary_15% extra" from employees order by salary desc;
```

output:

NAME	SALARY	Salary_15% Extra
Steven King	24000	27600
Neena Kochhar	17000	19550
Lex De Haan	17000	19550
John Russell	14000	16100
Karen Partners	13500	15525

....

James Landry	2400	2760
Hazel Philtanker	2200	2530
Steven Markle	2200	2530
TJ Olson	2100	2415

107 rows returned in 0.00 seconds [CSV Export](#)

Q 13). List all employees who joined after “01-jan-2000” and before “18-aug-2005”.

Ans:

```
select first_name ||' '| last_name as name,HIRE_DATE from EMPLOYEES where HIRE_DATE between to_date('01-jan- 2000','dd mon yyyy') and to_date('18-aug-2005','dd mon yyyy');
```

output :

NAME	HIRE_DATE
Steven Markle	08-MAR-00
Hazel Philtanker	06-FEB-00
Eleni Zlotkey	29-JAN-00
Mattea Marvin	24-JAN-00
David Lee	23-FEB-00
Sundar Ande	24-MAR-00
Amit Banda	21-APR-00
Sundita Kumar	21-APR-00
Charles Johnson	04-JAN-00
Girard Geoni	03-FEB-00
Douglas Grant	13-JAN-00

11 rows returned in 0.00 seconds

Q 14). Display the difference between highest and lowest salary For each department.

Ans:

```
select DEPARTMENT_ID,max(SALARY) as MAX_SALARY,min(SALARY) as MIN_SALARY,max(SALARY)-min(SALARY) as salary_diff from EMPLOYEES group by DEPARTMENT_ID order by DEPARTMENT_ID;
```

output:

NAME	HIRE_DATE
Steven Markle	08-MAR-00
Hazel Philtanker	06-FEB-00
Eleni Zlotkey	29-JAN-00
Mattea Marvins	24-JAN-00
David Lee	23-FEB-00
Sundar Ande	24-MAR-00
Amit Banda	21-APR-00
Sundita Kumar	21-APR-00
Charles Johnson	04-JAN-00
Girard Geoni	03-FEB-00
Douglas Grant	13-JAN-00

11 rows returned in 0.00 seconds

Q 15). List all jobs for manager and difference between average And maximum salary.

Ans:

```
select JOB_TITLE,MAX_SALARY,(MIN_SALARY+MAX_SALARY)/2 as avg_salary,MAX_SALARY-((MIN_SALARY+MAX_SALARY)/2) as salary_diff from jobs where JOB_TITLE like '%Manager%';
```

output:

JOB_TITLE	MAX_SALARY	AVG_SALARY	SALARY_DIFF
Finance Manager	16000	12100	3900
Accounting Manager	16000	12100	3900
Sales Manager	20000	15000	5000
Purchasing Manager	15000	11500	3500
Stock Manager	8500	7000	1500
Marketing Manager	15000	12000	3000

6 rows returned in 0.02 seconds

[CSV Export](#)

Q 16). Display minimum and maximum salary for each job type.

Ans:

```
select JOB_TITLE, MIN_SALARY, MAX_SALARY from jobs;
```

output:

JOB_TITLE	MIN_SALARY	MAX_SALARY
President	20000	40000
Administration Vice President	15000	30000
Administration Assistant	3000	6000
Finance Manager	8200	16000
Accountant	4200	9000
Accounting Manager	8200	16000
Public Accountant	4200	9000
Sales Manager	10000	20000
Sales Representative	6000	12000
Purchasing Manager	8000	15000
Purchasing Clerk	2500	5500
Stock Manager	5500	8500
Stock Clerk	2000	5000
Shipping Clerk	2500	5500
Programmer	4000	10000
Marketing Manager	9000	15000
Marketing Representative	4000	9000
Human Resources Representative	4000	9000
Public Relations Representative	4500	10500

19 rows returned in 0.00 seconds [CSV Export](#)

Q 17). Display the employees who earn more than the lowest Salary of department 30.

Ans:

```
select e.first_name || ' ' || e.last_name as name, e.salary, e.DEPARTMENT_ID from EMPLOYEES e
where salary > (select min(salary) from EMPLOYEES where DEPARTMENT_ID = 30);
```

output:

NAME	SALARY	DEPARTMENT_ID
Steven King	24000	90
Neena Kochhar	17000	90
Lex De Haan	17000	90
Alexander Hunold	9000	60
Bruce Ernst	6000	60

.....

Susan Mavris	6500	40
Hermann Baer	10000	70
Shelley Higgins	12000	110
William Gietz	8300	110

96 rows returned in 0.03 seconds [CSV Export](#)

Q 18). Display all the employees who are not managed by anyone.

Ans:

```
select first_name ||' '| last_name as name from EMPLOYEES where MANAGER_ID is NULL;
```

output:

NAME
Steven King

1 rows returned

Q 19). Display all the employees working in same Department on same post where “smith” is working.

Ans:

```
select e.first_name ||' '| e.last_name as name,j.job_title,d.DEPARTMENT_NAME from
EMPLOYEES e,jobs j,DEPARTMENTS d where e.job_id=j.job_id and
e.DEPARTMENT_ID=d.DEPARTMENT_ID and e.DEPARTMENT_ID in(select DEPARTMENT_ID
from EMPLOYEES where first_name like 'Smith') and e.JOB_ID in( select JOB_ID from
EMPLOYEES where first_name like 'Smith');
```

output:

no data found

Q 20). List all the average salary for each department then find Out the employees who are getting more than that Average salary.

Ans:

```
select e.first_name ||' '|| e.last_name as name, e.salary, s.avg_salary, e.DEPARTMENT_ID,
d.DEPARTMENT_NAME from (select DEPARTMENT_ID,avg(salary) as avg_salary from employees
group by DEPARTMENT_ID order by DEPARTMENT_ID) s,employees e,DEPARTMENTS d where
e.DEPARTMENT_ID = s.DEPARTMENT_ID and e.DEPARTMENT_ID=d.DEPARTMENT_ID and e.salary >
s.avg_salary order by e.DEPARTMENT_ID;
```

output:

NAME	SALARY	AVG_SALARY	DEPARTMENT_ID	DEPARTMENT_NAME
Michael Hartstein	13000	9500	20	Marketing
Den Raphaely	11000	4150	30	Purchasing
Matthew Weiss	8000	3475.5555555555555555555555555555555555555556	50	Shipping
Adam Fripp	8200	3475.55555555555555555555555555555555555556	50	Shipping
Payam Kaufling	7900	3475.55555555555555555555555555555555555556	50	Shipping
Shanta Vollman	6500	3475.55555555555555555555555555555555555556	50	Shipping

Nancy Greenberg	12000	8600	100	Finance
Daniel Faviet	9000	8600	100	Finance
Shelley Higgins	12000	10150	110	Accounting

38 rows returned in 0.01 seconds

[CSV Export](#)

Assignment – 3

Q 1). Write a query in SQL to list the details of the employees whose salary is more than the salary of DEN.

Ans:

```
select * from employees where salary > (select salary from employees where first_name='Den');
```

output:

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMISSION_PCT	MANAGER_ID	DEPARTMENT_ID
100	Steven	King	SKING	515.123.4567	17-JUN-87	AD_PRES	24000	-	-	90
101	Neena	Kochhar	NKOCHHAR	515.123.4568	21-SEP-89	AD_VP	17000	-	100	90
102	Lex	De Haan	LDEHAAN	515.123.4569	13-JAN-93	AD_VP	17000	-	100	90
108	Nancy	Greenberg	NGREENBE	515.124.4569	17-AUG-94	FI_MGR	12000	-	101	100
145	John	Russell	JRUSSEL	011.44.1344.429268	01-OCT-96	SA_MAN	14000	.4	100	80
146	Karen	Partners	KPARTNER	011.44.1344.467268	05-JAN-97	SA_MAN	13500	.3	100	80
147	Alberto	Errazuriz	AERRAZUR	011.44.1344.429278	10-MAR-97	SA_MAN	12000	.3	100	80
168	Lisa	Ozer	LOZER	011.44.1343.929268	11-MAR-97	SA REP	11500	.25	148	80
201	Michael	Hartstein	MHARTSTE	515.123.5555	17-FEB-96	MK_MAN	13000	-	100	20
205	Shelley	Higgins	SHIGGINS	515.123.8080	07-JUN-94	AC_MGR	12000	-	101	110

10 rows returned in 0.01 seconds [CSV Export](#)

Q 2). Write a query in SQL to list the department where there are no employees.

Ans:

```
select DEPARTMENT_ID from DEPARTMENTS where MANAGER_ID is null;
```

output:

DEPARTMENT_ID
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270

16 rows returned in 0.

Q 3). Write a query in SQL to find the highest paid employees in the department marketing.

Ans:

```
Select first_name, last_name, salary from employees where salary in (select max(salary) from employees where department_id in (select department_id from departments where department_name= 'Marketing')) ;
```

output:

FIRST_NAME	LAST_NAME	SALARY
Michael	Hartstein	13000

1 rows returned in 0.02 seconds [CSV Export](#)

4). Write a query in SQL to list the employees who joined in 1991 in a designation same as the most senior person of the year 1991.

Ans:

```
SELECT first_name name,hire_date,job_id FROM employees WHERE job_id IN (SELECT job_id FROM employees WHERE hire_date IN (SELECT min(hire_date) FROM employees WHERE to_char(hire_date,'YYYY') ='1991')) and to_char(hire_date,'YYYY') ='1991';
```

output :

NAME	HIRE_DATE	JOB_ID
Bruce	21-MAY-91	IT_PROG

1 rows returned in 0.03 seconds

Q 5). Write a query in SQL to list the details of the departments where maximum number of employees working.

Ans:

```
select * from departments where department_id in(select department_id from employees group by department_id having count(*) in (select max(count1) from (select count(*) count1 from employees group by department_id)));
```

output:

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
50	Shipping	121	1500

1 rows returned in 0.00 seconds

[CSV Export](#)

Q 6). Display all the information of all employees who have the letters D, S, or N in their first name and arrange the result in descending order by salary.

Ans:

```
select distinct first_name from employees where first_name like '%S%' or first_name like '%N%' or first_name like '%D%';
```

output:

FIRST_NAME
Nancy
Shelley
Steven
Samuel
Sigal
Shanta
Donald
Sarah
Sundita
Diana
Nanette
Den
Douglas
Danielle
David
Shelli
Daniel
Neena
Sundar
Susan
Nandita
Sarath
Stephen

23 rows returned in 0.02 seconds

Q 7). Display those employees who contain a letter z to their first name and also display their last name, department, city, and state province.

Ans:

```
select e.first_name,e.last_name,l.city,l.state_province,d.department_name from employees
e,locations l,departments d where e.department_id=d.department_id AND l.location_id
=d.location_id AND e.first_name like '%z%';
```

output:

FIRST_NAME	LAST_NAME	CITY	STATE_PROVINCE	DEPARTMENT_NAME
Mozhe	Atkinson	South San Francisco	California	Shipping
Hazel	Philtanker	South San Francisco	California	Shipping
Elizabeth	Bates	Oxford	Oxford	Sales

3 rows returned in 0.01 seconds

[CSV Export](#)

Q 8). Display all departments including those where does not have any employee.

Ans:

```
select d.department_id,d.department_name from departments d where MANAGER_ID is null;
```

output:

DEPARTMENT_ID	DEPARTMENT_NAME
120	Treasury
130	Corporate Tax
140	Control And Credit
150	Shareholder Services
160	Benefits
170	Manufacturing
180	Construction
190	Contracting
200	Operations
210	IT Support

More than 10 rows available. Increase rows selector to view more rows.

10 rows returned in 0.00 seconds

[CSV Export](#)

Q 9). Write a query in SQL to display the first name of all employees including the first name of their manager.

Ans:

```
select e1.first_name,e2.first_name manager_name from employees e1,employees e2 where e2.employee_id=e1.manager_id;
```

output:

FIRST_NAME	MANAGER_NAME
Michael	Steven
Eleni	Steven
Gerald	Steven
Alberto	Steven
Karen	Steven
John	Steven
Kevin	Steven
Shanta	Steven
Payam	Steven
Adam	Steven

More than 10 rows available. Increase rows selector to view more rows.

10 rows returned in 0.00 seconds [CSV Export](#)

Q 10). Display the full name of employee with ID and present country where (s)he is working.

Ans:

```
select e.first_name,e.last_name,e.employee_id,c.country_name from employees e,departments d,locations l,countries c where e.department_id=d.department_id and d.location_id= l.location_id and l.country_id=c.country_id;
```

output:

FIRST_NAME	LAST_NAME	EMPLOYEE_ID	COUNTRY_NAME
Steven	King	100	United States of America
Neena	Kochhar	101	United States of America
Lex	De Haan	102	United States of America
Alexander	Hunold	103	United States of America
Bruce	Ernst	104	United States of America
David	Austin	105	United States of America
Valli	Pataballa	106	United States of America
Diana	Lorentz	107	United States of America
Nancy	Greenberg	108	United States of America
Daniel	Faviet	109	United States of America

More than 10 rows available. Increase rows selector to view more rows.

10 rows returned in 0.00 seconds [CSV Export](#)

Assignment – 4

Q 1). Create a PL/SQL program to show your name on the console.

Ans:

```
DECLARE
  name varchar2(20):= 'Raees';
BEGIN
  dbms_output.put_line('my name is ' || name);
END;
```

Output:

```
my name is Raees
Statement processed.

0.00 seconds
```

Q 2). With the help of example the following

i). If and else statement

Ans:

```
DECLARE
  name varchar2(20):= 'Raees';
BEGIN
  if LENGTH(name)>5 then
    dbms_output.put_line('name greather then 5');
  else
    dbms_output.put_line('name less then 6');
```

```

END IF;

dbms_output.put_line('name is '|| name);

END;

```

Output:

```

name less then 6
name is Raees

Statement processed.

```

0.00 seconds

ii). Loop...endloop with while

Ans:

```

DECLARE
  i number(2):=1;
BEGIN
  dbms_output.put_line('printing table of 7 ');
  WHILE i < 11
  LOOP
    dbms_output.put_line('7 * '|| i || ' = '|| 7*i);
    i:=i+1;
  END LOOP;
  dbms_output.put_line('table ended and while loop exited ');
END;

```

Output:

```

printing table of 7
7 * 1 = 7
7 * 2 = 14
7 * 3 = 21
7 * 4 = 28
7 * 5 = 35
7 * 6 = 42
7 * 7 = 49
7 * 8 = 56
7 * 9 = 63
7 * 10 = 70
table ended and while loop exited

Statement processed.

```

0.02 seconds

iii) Loop...endloop with for

Ans:

```
DECLARE
BEGIN
dbms_output.put_line('printing REVERSE table of 10 ');
FOR z IN REVERSE 1..10
LOOP
dbms_output.put_line('10 * '|| z || '=' || 10*z);
END LOOP;
dbms_output.put_line('table ended and while loop exited ');
END;
```

Output:

```
printing REVERSE table of 10
10 * 10 = 100
10 * 9 = 90
10 * 8 = 80
10 * 7 = 70
10 * 6 = 60
10 * 5 = 50
10 * 4 = 40
10 * 3 = 30
10 * 2 = 20
10 * 1 = 10
table ended and while loop exited

Statement processed.
```

0.00 seconds

Q 3). Explain the following Transaction control in PL/SQL.

i)SAVEPOINT

ii)COMMIT

iii)ROLLBACK

Ans:

DECLARE

--cust_id test_bank.cust_id%TYPE:=1;

--tr_amount test_bank.bal%TYPE:=50000;

--tr_amount test_bank.bal%TYPE;

tr_id transaction.id%TYPE:=2;

tr_send_cust_id transaction.send_cust_id%TYPE:=3;

tr_res_cust_id transaction.send_cust_id%TYPE:=2;

tr_amount transaction.amount%TYPE:=50000;

tr_send_cust_amount transaction.amount%TYPE;

--tr.tr_time=CURRENT_TIMESTAMP;

BEGIN

SAVEPOINT tr_start;

--cust_id:=&cust_id;

select bal into tr_send_cust_amount from test_bank where cust_id=tr_send_cust_id;

if tr_send_cust_amount>=50000 then

update test_bank set bal=bal-tr_amount where cust_id=tr_send_cust_id;

insert into transaction values

(tr_id.nextval,tr_send_cust_id,tr_res_cust_id,tr_amount,CURRENT_TIMESTAMP);

update test_bank set bal=bal+tr_amount where cust_id=tr_res_cust_id;

dbms_output.put_line('transaction has done successfully');

else

dbms_output.put_line('transaction failed due to low balance');

end if;

```
SAVEPOINT test_roll;

insert into test_bank values(6,'test_roll',60000.70);

ROLLBACK TO test_roll; commit;

insert into test_bank values(6,'test_roll',60000.70);

ROLLBACK;

--insert into test_bank values(10,'test_roll',60000.70);

--commit;

--ROLLBACK;

--truncate table transaction;

END;
```

Q 4). Write a program to show the use of implicit cursor.

Ans:

```
DECLARE
data number(3);
BEGIN
update EMPLOYEES set SALARY=SALARY + 1500 where JOB_ID in (select JOB_ID from JOBS where
job_title like '%Manager%');

data:=sql%rowcount;

dbms_output.put_line(sql%rowcount || ' Managers salary update with +1500 ');

update EMPLOYEES set SALARY=SALARY + 700 where JOB_ID in (select JOB_ID from JOBS where
job_title like '%Clerk%');

dbms_output.put_line(sql%rowcount-data || ' Clerks salary update with +700 ');
DBMS_OUTPUT.NEW_LINE;

DBMS_OUTPUT.NEW_LINE;

dbms_output.put_line(' Total '|| sql%rowcount || ' employees salary updated ');

END;
```

Output:

```
14 Managers salary update with +1500
31 Clerks salary update with +700
```

```
Total 45 employees salary updated
1 row(s) updated.
```

```
0.00 seconds
```

Q 5). Write a program to show the use of explicit cursor.

Ans:

```
DECLARE
  c_id test_bank.cust_id%type;
  c_name test_bank.name%type;
  c_bal test_bank.bal%type;
  CURSOR c_customers is
    SELECT cust_id, name, bal FROM test_bank order by cust_id;
  BEGIN
    OPEN c_customers;
    LOOP
      FETCH c_customers into c_id, c_name, c_bal;
      EXIT WHEN c_customers%notfound;
      dbms_output.put_line(c_id || ' ' || c_name || ' ' || c_bal);
    END LOOP;
    DBMS_OUTPUT.NEW_LINE; DBMS_OUTPUT.NEW_LINE;
    dbms_output.put_line(c_customers%rowcount || ' row selected ');
    CLOSE c_customers;
  END;
```

Q 6). Create a PL/SQL program to raise salary of manager by 1000 and salary of clerk by 500.

Ans:

```
DECLARE
data number(3);
BEGIN
update EMPLOYEES set SALARY=SALARY + 1000 where JOB_ID in (select JOB_ID from JOBS where
job_title like '%Manager%');

data:=sql%rowcount;

dbms_output.put_line(sql%rowcount || ' Managers salary update with +1000 ');

update EMPLOYEES set SALARY=SALARY + 500 where JOB_ID in (select JOB_ID from JOBS where
job_title like '%Clerk%');

dbms_output.put_line(sql%rowcount-data || ' Clerks salary update with +500 ');
DBMS_OUTPUT.NEW_LINE;

DBMS_OUTPUT.NEW_LINE;

dbms_output.put_line(' Total '|| sql%rowcount || ' employees salary updated ');

END;
```

Output:

```
14 Managers salary update with +1000
31 Clerks salary update with +500
```

```
Total 45 employees salary updated
```

```
1 row(s) updated.
```

```
0.00 seconds
```

Q 7). Create a PL/SQL program to check data type or size error and generate a exception is required.

Ans.

```
DECLARE
num number(3);
BEGIN
num:=4d; exception
WHEN INVALID_NUMBER THEN
DBMS_OUTPUT.PUT_LINE ('INVALID_NUMBER like 3g,2345csd');

WHEN VALUE_ERROR THEN
DBMS_OUTPUT.PUT_LINE ('VALUE_ERROR like wqed,sdfs,er4');

WHEN OTHERS THEN
dbms_output.put_line(SQLERRM); END;
```

Output:

Statement processed.

0.00 seconds

INDEX

Sr.no.	ASSIGNMENT-1	Page no.	signature
	<p>Q1. Write program to implement basic HTML Tags.</p> <p>Q2. Write an HTML program to create mark-sheet using table tag.</p> <p>Q3. Create a hyperlink on image explain with the help of examples.</p> <p>Q4. Write a code in html to make the definition list .</p> <p>Q5. With the help of Notepad creates following : (a). internal style sheet. (b).external style sheet.</p> <p>Q6. Write a code in html to design a student Registration form.</p> <p>Q7. Write a code in html to design a student Login form.</p>		

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Sr.no .	ASSIGNMENT-2	Page no.	Signature
Q1.	Write a JavaScript to design a simple calculator to perform the following operations: sum, product, difference, and quotient.		
Q2.	Write a JavaScript that calculates the squares and cubes of the numbers from 0 to 10 and outputs html text that displays the resulting values in an html table format.		
Q3.	Write a programs to the simple calculator using the windows application.		
Q4.	Write a program to the Java Script calculates the factorial.		
Q5.	Design a wed page showing use of prompt dialog box and confirm dialog box.		
Q6.	Design a wed page to change image on mouse over and out.		
Q7.	Design a web page to change text on mouse over and out.		
Q8.	Make a login form using JavaScript and Validate two text fields.		
Q9.	Design a web page to get the coordinates of cursor.		
Q10.	Using JavaScript do the following operations. (a).On Click (b).On Load		

Assignment-3

S.No.	Assignment	Page No.	Signature
1)	Create a webform in ASP NET using following fields- First Name, Last Name, User Name, Password, Confirm Password, Gender, DOB, MobileNo., Security Answer, Location, Terms & Cond.		
2)	Create a website which validates the above designed form using validation control: Required Field Validation, Range Validation, Compare Validation, Regular Expression, Custom Validation, Summary Validation.		
3)	Create a Webform to retrieve data from one Webform and display another Webform.		
4)	Design a web form to save file into the upload folder using File Upload control and display (Name of file, Type of file, Type of file, Size of file) of uploaded file.		
5)	Design a webform which shows the use of Navigation Control.		
6)	Design a webform using calendar control and display the monthly events (Holidays).		

Assignment-4

S.No.	Assignment	Page No.	Signature
1)	Jquery Element selector, ID selector, Class selector.		
2)	Write a code using jquery the value of input element is set by val() method by selecting the input element from its ID.		
3)	Write a program in jquery using have hide() and show() methods which are used to hide and show HTML elements respectively.		
4)	Write jquery to perform-moving mouse over and element, click mouse over an element.		
5)	Write a jquery program using animation() method.		
6)	Write jquery code to perform following with AJAX-1, AJAX load(), AJAX get(), AJAX post().		

ASSIGNMENT-1

Q1. Write program to implement basic html tags.

ANSWER:-

-:HTML file:-

```
<!DOCTYPE html>

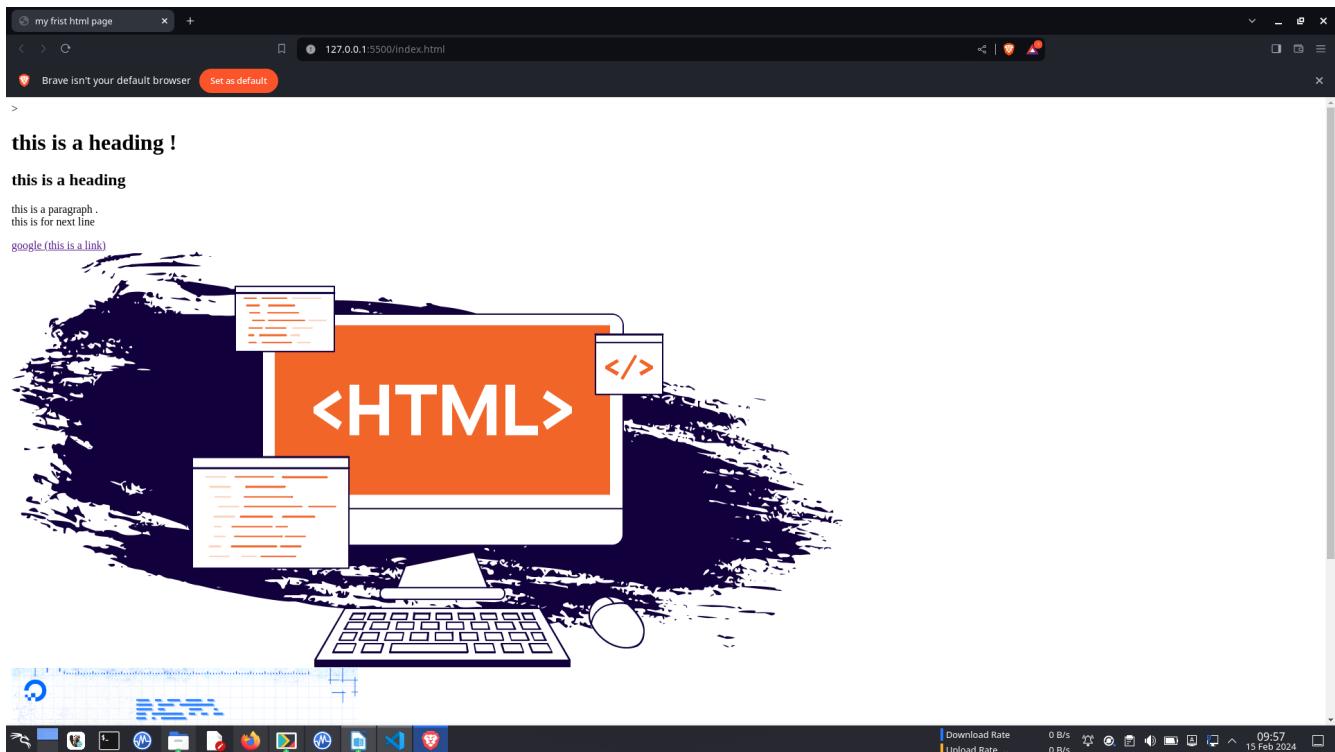
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>my frist html page</title>
</head>

<body>
<h1>this is a heading ! </h1>
<h2> this is a heading</h2>
<p> this is a paragraph . <br/> this is for next line </p>
<a href ="https://google.com">google (this is a link) </a> <br/>

<img src ="https://austingil.com/wp-content/uploads/HTML-Blog-Cover.png"
alt="html pic"/> <br/>
<img src ="/html img2.png"
alt="htmlpic" width="500"/>
<ul>
<li> this is unordered list item</li>

</ul>
<ol>
<li>this is ordered list item </li>
</ol>
<!--bold ,italic&underline tags-->
<b>bold</b><br>
<i>italic</i><br>
<u>underline</u>
</body>
</html>
```

:-OUTPUT:-



Q2. Write an html program to create mark -sheet using table tag.

ANSWER:-

:-HTML file:-

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>mark-sheet</title>
</head>

<body>
<h1>marksheet</h1>
<h2>student name :ram</h2>
<table border="2">
<tr>

<th>sub name</th>
```

```

<th>marks</th>
<th>totak marks</th>
</tr>
<tr>
<td>dbms
</td>
<td> 75 </td>
<td>100</td>
</tr>
<tr>
<td>
cpp
</td>
<td>87</td>
<td>100</td>
</tr>
<tr>
<td>cn</td>
<td>89</td>
<td>100</td>
</tr>
<tr>
<td>spm</td>
<td>78</td>
<td>100</td>
</tr>
<tr>
<td>wd</td>
<td>89</td>
<td>100</td>
</tr>
<tr>
<td>math</td>
<td>78</td>
<td>100</td>
</tr>
<tr><td>c</td>
<td>80</td>
<td>100</td>
</tr>
</table>
</body>
</html>

```



marksheet

student name :ram

sub name	marks	totak marks
dbms	75	100
cpp	87	100
cn	89	100
spm	78	100
wd	89	100
math	78	100
c	80	100

:OUTPUT:-

Q3.create a hyperlink on image explain with the help of examples .

ANSWER:-

-:HTMLFILE:-

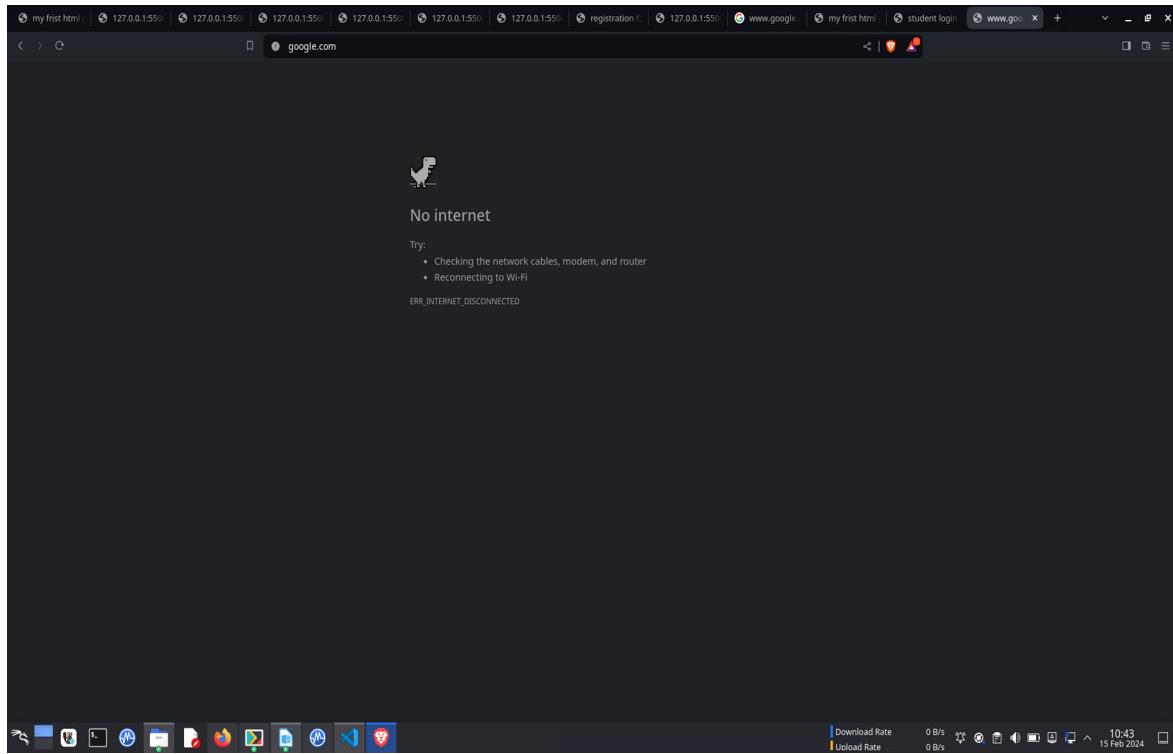
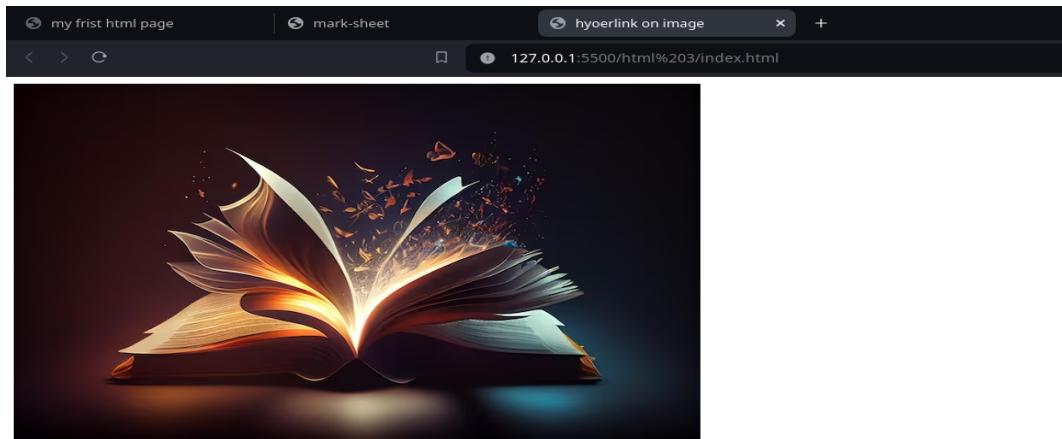
```
<html>

<h1>
<title>
    hyperlink on image
</title>
</h1>
<body>
    <a href =https://www.google.com >

        <img src ="https://img.freepik.com/premium-photo/opened-book-with-flying-pages-butterflies-dark-backgroundgenerative-ai_391052-12859.jpg"
            alt="book img">
    </a>
</body>

</html>
```

:OUTPUT:-



Q4.write a code in html to make the definition list .

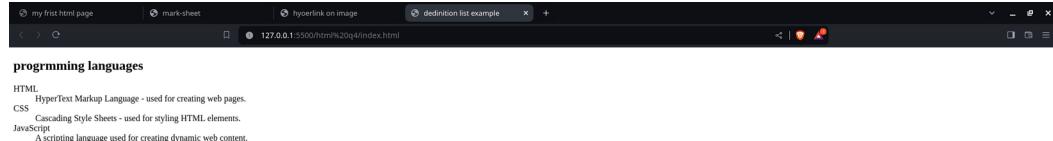
ANSWER:-

-:HTML FILE:-

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>dedinition list example</title>
</head>
<body>

<h2>programm languages</h2>
<dl>
<dt>HTML</dt>
<dd>HyperText Markup Language - used for creating web pages.</dd>
<dt>CSS</dt>
<dd>Cascading Style Sheets - used for styling HTML elements.</dd>
<dt>JavaScript</dt>
<dd>A scripting language used for creating dynamic web content.</dd>
</dl>
</body>
</html>
```

-:OUTPUT:-



Q5.with the help of notepad creates following.

- (a)internal style sheet
- (b)external style sheet

ANSWER:-

- (a)internal style sheet

-:HTML FILE:-

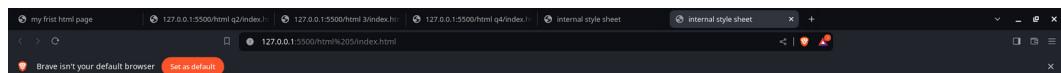
```
<!DOCTYPE html>
<html>
<title>internal style sheet</title>
<style> p{
color: darkslateblue;
}
h1{
color: #262344;
font-size: 40px;
}

</style>
```

```
<body>
<h1>internal css</h1>
<p>this is internal style sheet example</p>
</body>

</html>
```

-:OUTPUT:-



internal css

this is internal style sheet example



(b)external style sheet

-:HTML FILE:-

```
<!DOCTYPE html>

<html>
<head>
<title>external style sheet</title>
<link rel ="stylesheet" href ="style.css">
</head>
<body>
<h1>external css</h1>
<p>this is external style sheet example</p>

</body>

</html>
```

-:CSS FILE:-

```
p{
color: black;
}
h1{
color: saddlebrown;
}
```



Q6.write a code in html to desing a student registration form.

ANSWER:-

-:HTML FILE:-

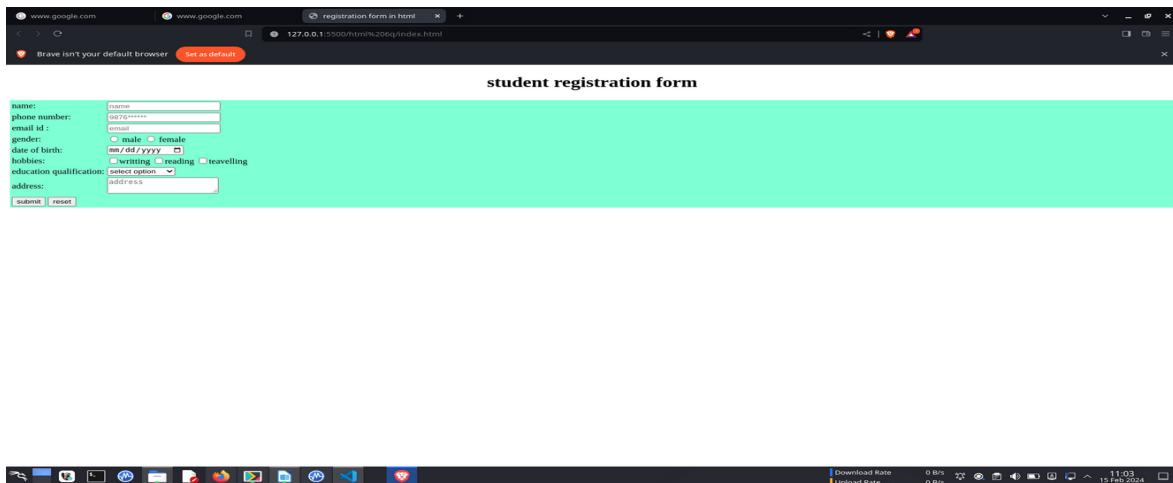
```
<!DOCTYPE html>
<html>
<head>
<title>registration form in html</title>
<style> form{
background-color: aquamarine;
}
</style>
</head>
<body>
<h1 style="text-align:center">student registration form</h1>
<form>
<table>
<tr>
<td>
name:
</td>
<td>
<input type ="text" placeholder="name" >
</td>
</tr>
<tr>
<td>
phone number:
</td>
<td>
<input type="phone" placeholder="9876*****">
</td>
</tr>
<tr>
<td>
email id :
</td>
<td>
<input typ="email" placeholder="email">
</td>
</tr>
<tr>
<td>
gender:
</td>
<td>
<input type="radio" name="gender"> male
```

```
<input type="radio" name="gender"> female
</td>
</tr>
<tr>
<td>
date of birth:
</td>
<td>
<input type ="date">
</td>
</tr>
<tr>
<td>
hobbies:
</td>
<td>
<input type="checkbox" writting>writting
<input type="checkbox" reading>reading
<input type="checkbox" travelling>teavelling
</td>
</tr>
<tr>
<td>
education qualification:
</td>
<td>
<select>
<option>select option </option>
<option>10+2</option>
<option>graduation</option>
<option>postgraduation </option>
</select>
</td>
</tr>
<tr>
<td>
address:
</td>
<td>
<textarea row="6" col="30" placeholder="address"></textarea>
</td>
</tr>
<tr>
<td>
<input type="submit" value ="submit">
<input type="reset" value ="reset">
</td>
</tr>
</table>
```

```
</form>
</body>

</html>
```

-:OUTPUT:-



The screenshot shows a web browser window with the title 'student registration form'. The form contains the following fields:

- name:
- phone number:
- email id:
- gender:
 male female
- date of birth:
- hobbies:
 writing reading travelling
- education qualification:
- address:

At the bottom of the form are two buttons: 'submit' and 'reset'.

Q7.write a code in html to desingn a student login form.

ANSWER:-

-:HTML FILE:-

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>student login form</title>
<link rel ="stylesheet" href="style.css">
</head>

<body>
<div class="contain">
<div class ="test">
<h1>login</h1>
<input class="inp1" type="text" placeholder="enter studentname"><BR>
<input class="inp2" type ="password" placeholder="enter password">
<p>forget password?</p>
<button>login</button>
<p>not a member? <span>sign up</span> </p>
</div>
</div>
</body>
```

</html>

-:CSS FILE:-

```
*{  
margin: 0%;  
padding: 0%;  
}  
body{  
background-image: url("fda.jpg");  
background-size: 100% 740px;  
}  
  
.test{  
width: 300px;  
height: 400px;  
background-color: black;  
text-align: center;  
color: white;  
margin-left: 35%;  
margin-top: 15%;  
}  
.contain .text{  
  
position: relative;  
top:7%;  
}  
.inp1{  
border: none;  
background-color: black;  
border-bottom :3px solid white ;  
width : 258px;  
font-size:20px;  
margin-top: 60px;  
outline:none;  
color: white;  
}  
  
.inp2{  
border: none;  
background-color: black;  
border-bottom :3px solid white ;  
width : 258px;  
font-size:20px;  
margin-top: 60px;  
outline:none;  
color: white;
```

```
}
```

```
.test button{
```

```
width: 250px;
```

```
height: 44px;
```

```
background-color: aqua;
```

```
color: black;
```

```
border: none;
```

```
font-size: 22px;
```

```
border-radius: 23px;
```

```
margin-top: 20px;
```

```
}
```

```
button:hover{
```

```
border: 3px solid aqua;
```

```
color: white;
```

```
font-size: 20px;
```

```
background-color: black;
```

```
}
```

```
p{
```

```
margin-top: 30px;
```

```
font-size: 20px;
```

```
}
```

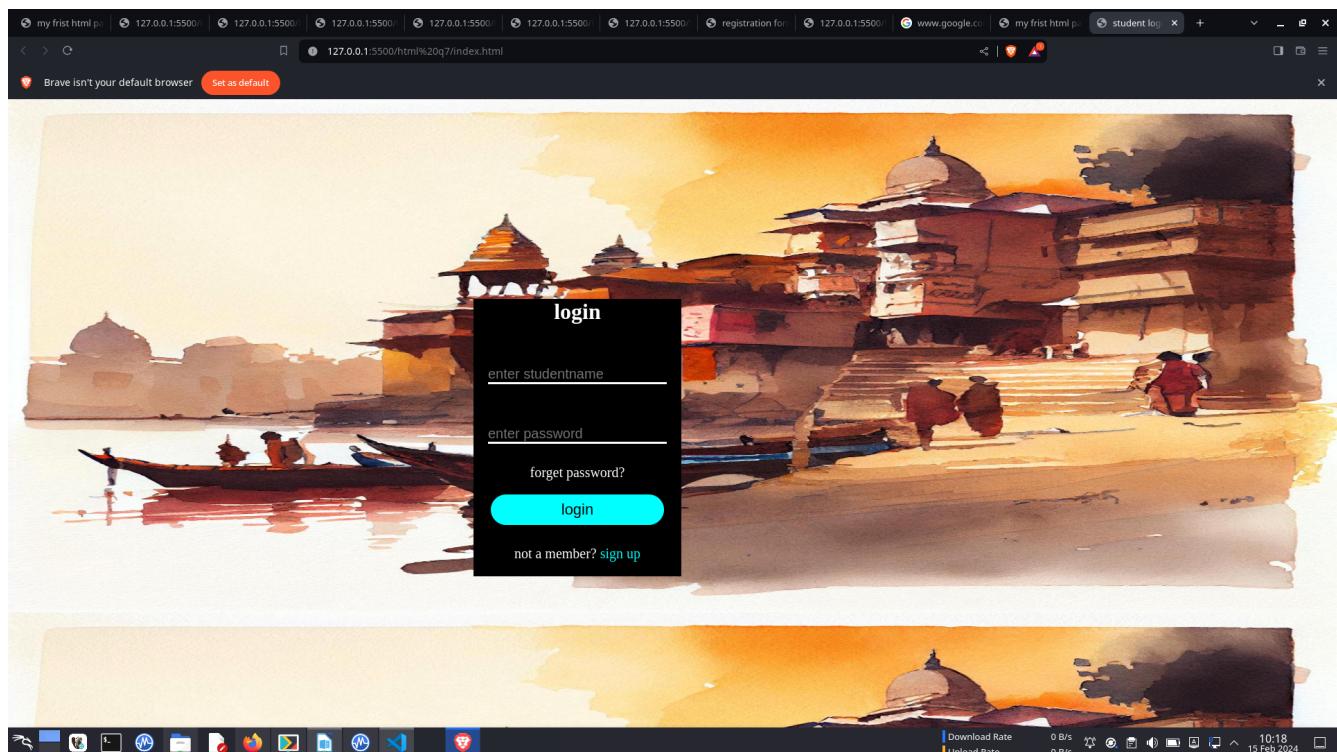
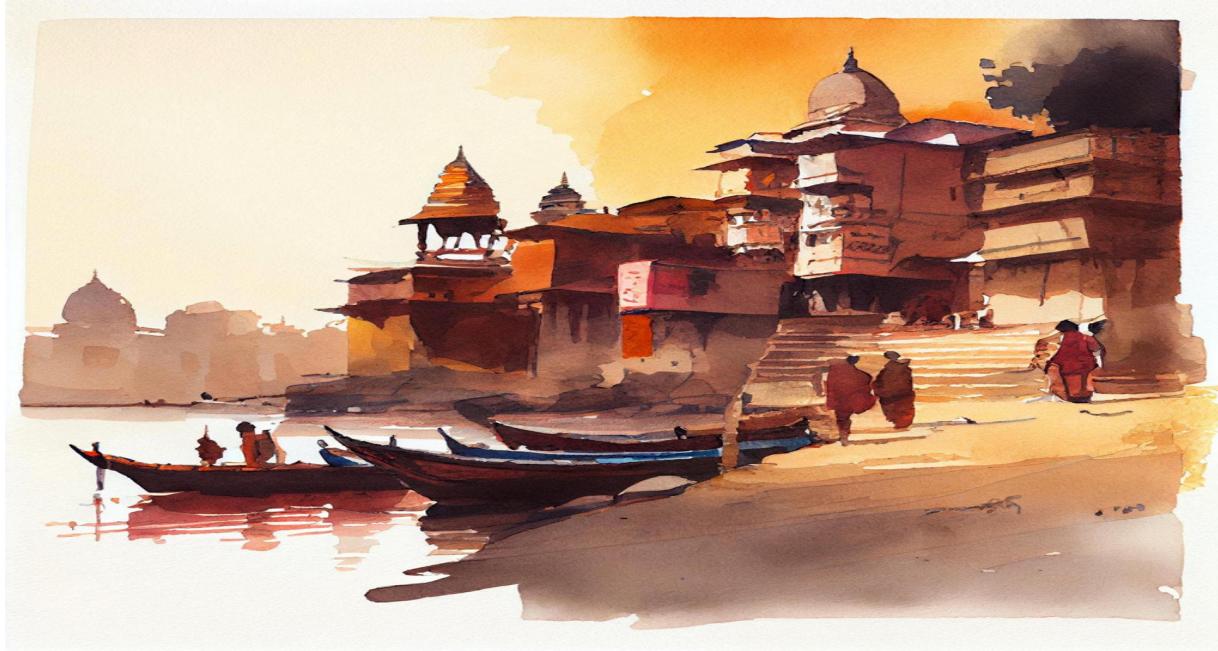
```
p span{
```

```
color: aqua;
```

```
}
```

OUTPUT:-

FILENAME :- fda.jpg



Assignment-2

Q1. Write a JavaScript to design a simple calculator to perform the following operations: sum, product, difference, and quotient.

-:HTML File:-

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Simple Calculator</title>
  <link rel="stylesheet" href="Style.css">
</head>
<body>
  <form name="myForm">
    <h1 class="heading">Simple Calculator</h1>
    <table align="center">
      <tr>
        <th colspan="4"><input
          Type="text" name="expression" id="screen" readonly="readonly" placeholder="0">
        </th></tr>
      <tr>
        <td><input type="button" value="1" onclick="myForm.expression.value+=1"/></td>
        <td><input type="button" value="2" onclick="myForm.expression.value+=2"/></td>
        <td><input type="button" value="3" onclick="myForm.expression.value+=3"/></td>
        <td><input type="button" value="+" onclick="myForm.expression.value+=+"/></td></tr>
      <tr>
        <td><input type="button" value="4" onclick="myForm.expression.value+=4"/></td>
        <td><input type="button" value="5" onclick="myForm.expression.value+=5"/></td>
        <td><input type="button" value="6" onclick="myForm.expression.value+=6"/></td>
        <td><input type="button" value="-" onclick="myForm.expression.value+=-"/></td></tr>
      <tr>
        <td><input type="button" value="7" onclick="myForm.expression.value+=7"/></td>
        <td><input type="button" value="8" onclick="myForm.expression.value+=8"/></td>
        <td><input type="button" value="9" onclick="myForm.expression.value+=9"/></td>
        <td><input type="button" value="*" onclick="myForm.expression.value+=*"/></td></tr>
      <tr>
        <td><input type="button" value="=" onclick="myForm.expression.value=eval(myForm.expression.value)"/></td>
        <td><input type="button" value="0" onclick="myForm.expression.value+=0"/></td>
        <td><input type="button" value="/" onclick="myForm.expression.value+=/"/></td>
        <td><input type="button" value="." onclick="myForm.expression.value+=.+"/></td></tr>
      <tr>
        <td colspan="4"><input type="button" value="CLEAR" class="equal"
          onclick="myForm.expression.value=''"></td></tr>
    </table>
```

```
</body>
</html>
```

-:CSS File:-

```
body{
    margin: 10px;
    background:linear-gradient(55deg,red,blue);
}
table{
    border: 2px solid black;
    padding :20px;
    background:black;
}
.heading{
    Color: white;
    Text-align:center;
}
#screen{
    Margin-left:-40px;
    Height:80px;
    Width:93%;
    Text-align:right;
}
Input{
    Margin:0px 0 0 3px;
    Width:100px;
    Height:80px;
    Font-size:50px;}
    Input:hover{
        Border:3px solid white;
    }
.equal{width:93%;}
```

Q2. Write a JavaScript that calculates the squares and cubes of the numbers from 0 to 10 and outputs HTML text that displays the resulting value in an HTML table format.

-:HTML File:-

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Squre and Cubes</title>
  <link rel="stylesheet" href="Mystyle.css">
<script src="myscript.js"></script>
</head>
<body>
<div id="container">
  <h2>Let us calculate square and cube from 0 to 10</h2>
  <table id="tbl" border="1" cellspacing="0">
    <tr><th>Numbers</th><th>Square</th><th>cube</th></tr>
    <tr><td>0</td><td></td><td></td></tr>
    <tr><td>1</td><td></td><td></td></tr>
    <tr><td>2</td><td></td><td></td></tr>
    <tr><td>3</td><td></td><td></td></tr>
    <tr><td>4</td><td></td><td></td></tr>
    <tr><td>5</td><td></td><td></td></tr>
    <tr><td>6</td><td></td><td></td></tr>
    <tr><td>7</td><td></td><td></td></tr>
    <tr><td>8</td><td></td><td></td></tr>
    <tr><td>9</td><td></td><td></td></tr>
    <tr><td>10</td><td></td><td></td></tr>
  </table>
  <button id="calc" onclick="square()">Calculate</button></div>
</body>
</html>
```

-:CSS File:-

```
body{
  padding: 20px;
  background: linear-gradient(135deg, orange 60%, cyan);
}

#container{
  Margin:2% 0px 0px 30%;
  Height:70%;
}

H2{margin-left:6%}

#tbl{
  Height:90%
```

```

Border-radius:10px;
Width:60%
Background-color:white;
}

tb{
font-weight:bold;
text-align:center;
height:35px;
}

Button{
Padding:10px;
Font-size:20px;
Margin:20px 0px 0px 25%;
Color:white;
Background:black;
Border-radius:10px;}
Button:hover{
Color:black;
Background:blue;}

```

-:Script:-

```

function square()
{
    var table=document.getElementById("tbl");
    for(let i=1;i

```

Q3. Write a program to the simple calculator using the window application.

-:HTML File:-

```
<html>
<head>
    <title>Window calculator</title>
    <link rel="stylesheet" href="style.css">
</head>
<body>
<h1>CALCULATOR</h1>
<div class="container">
    <input type="text" readonly="readonly" id="screen" placeholder="0">
    <button class="number" onclick="show('7')">7</button>
    <button class="number" onclick="show('8')">8</button>
    <button class="number" onclick="show('9')">9</button>
    <button class="symbol" onclick="wipe()">AC</button>
    <button class="number" onclick="show('4')">4</button>
    <button class="number" onclick="show('5')">5</button>
    <button class="number" onclick="show('6')">6</button>
    <button class="symbol" onclick="show('+')">+</button>
    <button class="number" onclick="show('1')">1</button>
    <button class="number" onclick="show('2')">2</button>
    <button class="number" onclick="show('3')">3</button>
    <button class="symbol" onclick="show('-')">-</button>
    <button class="number" onclick="show('0')">0</button>
    <button class="symbol" onclick="show('*')">*</button>
    <button class="symbol" onclick="show('/')">/</button>
    <button class="symbol" id="symbol" onclick="calc('=')">=</button>
</div>
<script src="javascript.js"></script>
</body>
</html>
```

-:CSS File:-

```
body{
    background-color:skyblack; }
h1{
    padding:26px;
    color:white;
    text-align:center;}
.Container{
    background:grey;
    border:3px solid black;
    border-radius:10px;
    width:450px;
    margin:10vh auto 0 auto;
```

```

        Box-shadow:0px 0px 50px 20px rgba(153,153,153,0.9);}
#screen{
    Margin:9px 5px 7px 8px;
    Border-radius:10px;
    Width:95%
    Border:0.4px solid black;
    Text-align:right;
    Height:70px;
    Line-height:90px;
    Padding:16px 8px;
    font-size:30px; }

.number,
.symbol
{ border:0;
    Border-radius:50% 10%;
    Width:90px;
    Font-size:24px;
    Height:40px;
    Margin:10px 3px 12px 13px;
    Curser:pointer; }

.symbol{
    Background-color:#ff105e;
    Color:white; }

.symbol:hover{
    Border:2px solid white;
    Background-color:blue;
    Color:white;
    Transition:0.2s; }

.number:hover{
    Border:2px solid white;
    Transition:0.3s;
    Background-color:black;
    Color:white; }

```

-:Script:-

```

Let display=document.getElementById('screen');
const wipe=()=>{
    display.value='';}
const show=(n)=>{
    display.value+=n; }
const calc={}=>{
    display.value=eval{(display.value);}

```

Q4. Write a code in Java Script calculates the factorial.

-:HTML File:-

```
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Calculate factorial</title>
</head>
<body>
<div id="container">
<h1>Let us Calculate factorial!</h1>
    <input type="text" id="num" placeholder="Enter number"><br>
    <button onclick="fact()">Calculate</button>
    <p id="para"></p></div>
</body>
</html>
```

-:CSS File:-

```
Body{
    Background:linear-gradient(0.25turn,#3f87a6,#ebf8e1,#f69d3c);}
#container{
    Text-align:center;
    Margin:17%;}
#num{Border-radius:6px;
    Height:40px;
    Width:30%;
    Margin:10px;
    Font-size:20px;
    Text-align:center;}
Button{Background:blue;
    Padding:10px;font-size:20px;
    Color:white;
    Border-radius:10px;
    Cursor:pointer;}
#para{Font-size:30px;}
```

-:Script:-

```
function fact(){
    var I,num,f;
    f=1;
    num=document.getElementById("num").value;
    for(i=1;i<=num;i++)
    {f=f*I;}
    i=i-1
    document.getElementById("para").innerHTML="The factorial of "+i+" is: "+f;}
```

Q5. Design a web page showing use of prompt dialog box and confirm dialog box.

-:HTML File:-

```
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Prompt box</title>
    <script src="myscript.js"></script>
    <style>
        Body{background:linear-gradient(35deg,red 20%,white);
            Text-align:center;}
        Button{
            Font-size:50px;
            Background-color:blue;
            Border-radius:10px;}
    </style>
</head>
<body>
<button onclick="myf()">start</button>
</body>
</html>
```

-:Script:-

```
function myf(){
    var name=prompt("Enter your name:");
    callconfirm(name);}
function callconfirm(name){
    var check=confirm("Confirm your name:"+name);
    (check)?document.write("<br>Welcome <br>"+name):myf();}
```

Q6.Design a web page to change image on mouse over and out.

-:HTML File:-

```
<html>
<head>
    <title>Image over and Image out</title>
    <link rel="stylesheet" href="style.css">
<script src="javascript.js"></script>
</head>
<body>
<center>
<h1>This is Image Over and Image Out</h1>

</center>
</body>
</html>
```

-:CSS File:-

```
Body{
    Background:linear-gradient(45deg,red,blue);}
H1{
    Color:white;}
#img{
    Border-radius:20px;
    Width:60%;
    Border:5px solid cyan;}
```

-:Script:-

```
function OverImage(){
    document.getElementById("img").src="sumit-khowal-photo.jpg";}
function OutImage(){
    document.getElementById("img").src="out2.jpeg";}
```

Q7. Design a web page to change text on mouse over and out.

-:HTML File:-

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>text change on mouse over and out</title>
  <script src="javascript.js"></script>
  <link rel="stylesheet" href="mystyle.css">
</head>
<body >
  <p id="para" OnMouseOver="Overttext(this)" OnMouseOut="Outtext(this)">If you take your
  mouse on me then you know how the function work</p>
</body>
</html>
```

-:CSS File:-

```
Body{
  Background-color:grey;}
#para{
  Margin-top:100px;
  Background-color:tomato;
  Text-align:center;
  Font-size:300%;}
```

-:Script:-

```
function Overttext(o){
o.innerHTML="This is the change on Mouse Over and Out on the text"
function Outtext(o){
o.innerHTML="Take your Mouse on me to see the change"}
```

Q8. Make a Login form using JavaScript and Validate two text fields.

-:HTML File:-

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Validation</title>
  <link rel="Stylesheet" href="mystyle.css">
  <script src="javascript.js"></script>
</head>
<body>
  <div id="container">
    <form>
      <h2>Signup</h2>
      <label>Username:</label><br>
      <input type="text" id="un" placeholder="Enter username" required><br>
      <label>Password:</label><br>
      <input type="Password" name="Password" placeholder="Enter Password" required><br>
      <label>Confirm Password:</label><br>
      <input type="Password" name="Confirm-Password" placeholder="Confirm Password" required><br>
      <label>Mobile no.</label>
      <input type="text" placeholder="Enter your mob.no"><br>
      <label>Gmail:</label>
      <input type="text" placeholder="fill gmail"><br>
      <button onclick="validate(form)">Login</button>
      <button>Reset</button>
    </form>
  </div>
</body>
</html>
```

-:CSS File:-

```
Body{
  Background-color:lightgray;
  Color:white;}

#container{
  Width:280px;
  Height:350px;
  Margin:100px auto 0px auto;
  Border:1px solid black;
  Background-color:black;
  Box-shadow:10px 20px;
  Opacity:70%;
  Border-radius:10px;}

#container:hover{
```

```

        Opacity:100%}

Form{
    Font-weight:bold;
    Margin:10px 0 0 20px;}

H2{
    Text-align:center;}

Input{
    Height:26px;
    Width:206px;
    Margin-left:20px;
    Border-radius:10px;}

Button{
    Border:0px;
    Border-radius:10px;
    Margin:15px 0 0 40px;
    Padding:4px;
    Font-weight:bold;
    Background-color:pink;
    Color:black;
    Box-shadow:2px 5px gray;}

Button:hover{
    Background-color:blue;
    Color:white;transition:0.7s;}
```

-:Script:-

```

function validate(form){
var e=form.elements;
if(e['password'].value!=e['confirm-password'].value){
alert('Password do not match');
return false;}
alert('Password match');
return true;
var check=true;
if(document.getElementById("un").value=="")
{alert("Username can't be empty!");
Check=false;}}
```

Q9.Design a web page to get the coordinates of curser.

-:HTML File:-

```
<!DOCTYPE html>
<html lang="en">
<head>
<title></title>
<link rel="stylesheet" href="mystyle.css">
<script src="javascript.js"></script>
</head>
<body>
<h1>"Move your mouse pointer in the field to see the X and Y co-ordinates"</h1>
<div id="coordiv" width="600" height="410">
<rect onmousemove="myf(event)"/></div>
<p id="para1">Co-ordinates of X and Y</p>
</body>
</html>
```

-:CSS File:-

```
Body{
    Background:linear-gradient(#e66465,#9198e5);}
#coordiv{
    Margin:0% 28%;
    Cursor:pointer;
    Border:2px solid black;}
#para1{
    Font-size:30px;
    Color:white;
    Text-align:center;}
H1{
    Color:white;
    Text-decoration:underline;
    Text-align:center;}
Rect{
    Fill:cyan;
    Width:100%;
    Height:100%}
```

-:Script:-

```
function myf(event){
x=event.clientX;
y=event.clientY;
c=<h2>Coordinates:(“+x+”, “+y+”)</h2>”;
document.getElementById(“para1”).innerHTML=c;}
```

Q10.Using Java Script do the following operations.

(a)On Click:-

-:HTML File:-

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>On Click</title>
<script>
function myf(){
document.getElementById("para").innerHTML=<h1>THIS IS ONCLICK EVENT</h1>};
</script>
</head>
<body>
  <button onclick="myf()">Click on me</button>
<p id="para"></p>
</body>
</html>
```

(a)On Load:-

-:HTML File:-

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>OnLoadPage</title>
<script>
function myf(){
alert("please wait Page is loaded");
}
</script>
</head>
<body OnLoad="myf()">
  <h1 align="center">THIS IS ONLOAD FUNCTION!</h1>
</body>
</html>
```

Assignment - 3

Q1. Create a Webform in ASP.NET using following fields.

- a) First Name
- b) Last Name
- c) UserName
- d) Password
- e) Confirm Password
- f) Gender
- g) DOB
- h) Mobile No.
- i) Security question
- j) Answer
- k) Location
- l) Terms and Conditions

Ans:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head runat="server">
    <title></title>
</head>
<body>
    <form id="form1" runat="server">
        <div>
            <table align="center" cellpadding="10">
                <tr>
                    <td class="style2">
                        <asp:Label ID="Label1" runat="server" Text="First Name"></asp:Label>
                    </td>
                </tr>
            </table>
        </div>
    </form>
</body>
</html>
```

```
<td class="style3">
  <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
</td>
</tr>

<tr>
  <td class="style1">
    <asp:Label ID="Label2" runat="server" Text="Last Name"></asp:Label>
  </td>
  <td>
    <asp:TextBox ID="TextBox2" runat="server"></asp:TextBox>
  </td>
</tr>

<tr>
  <td class="style1">
    <asp:Label ID="Label3" runat="server" Text="UserName"></asp:Label>
  </td>
  <td>
    <asp:TextBox ID="TextBox3" runat="server"></asp:TextBox>
  </td>
</tr>

<tr>
  <td class="style1">
    <asp:Label ID="Label4" runat="server" Text="Password"></asp:Label>
  </td>
  <td>
    <asp:TextBox ID="TextBox4" TextMode="Password" runat="server" ></asp:TextBox>
  </td>
</tr>
```

```

</tr>

<tr>

<td class="style1">

<asp:Label ID="Label5" runat="server" Text="Confirm Password" ></asp:Label>

</td>

<td>

<asp:TextBox ID="TextBox5" TextMode="Password" runat="server"></asp:TextBox>

</td>

</tr>

<tr>

<td class="style1">

<asp:Label ID="Label6" runat="server" Text="Gender"></asp:Label>

</td>

<td>

<asp:DropDownList ID="DropDownList1" runat="server">

<asp:ListItem>MALE</asp:ListItem>

<asp:ListItem>FEMALE</asp:ListItem>

<asp:ListItem>OTHER</asp:ListItem>

</asp:DropDownList>

</td>

</tr>

<tr>

<td>

<asp:Label ID="Label7" runat="server" Text="DOB" ></asp:Label>

</td>

<td>

<asp:TextBox ID="TextBox6" TextMode="Date" runat="server"></asp:TextBox>

```

```
</td>
</tr>
<tr>
<td>
<asp:Label ID="Label8" runat="server" Text="Mobile No." ></asp:Label>
</td>
<td>
<asp:TextBox ID="TextBox7" runat="server"></asp:TextBox>
</td>
</tr>
<tr>
<td>
<asp:Label ID="Label9" runat="server" Text="Security Question" ></asp:Label>
</td>
<td>
<asp:TextBox ID="TextBox8" runat="server"></asp:TextBox>
</td>
</tr>
<tr>
<td class="style3">
<asp:Label ID="Label10" runat="server" Text="Answer"></asp:Label>
</td>
<td class="style3">
<asp:TextBox ID="TextBox9" runat="server"></asp:TextBox>
</td>
</tr>
<tr>
```

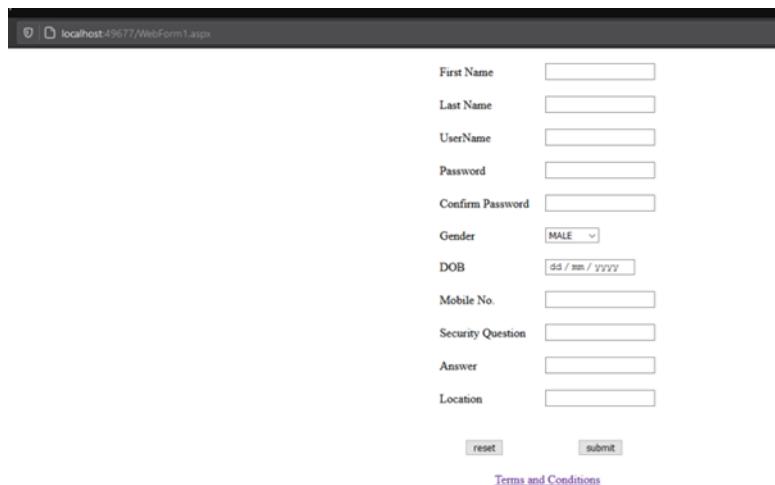
```

<td>
  <asp:Label
    ID="Label11"
    runat="server"
    Text="Location"
  ></asp:Label>
</td>
<td>
  <asp:TextBox ID="TextBox10" runat="server"></asp:TextBox>
</td>
</tr>
<tr>
  <td></td>
  <td></td>
</tr>
<tr align="center">
  <td>
    <asp:Button ID="Button4" runat="server" Text="reset" />
  </td>
  <td>
    <asp:Button ID="Button3" runat="server" Text="submit" />
  </td>
</tr>
<tr align="center">
  <td colspan="2">
    <asp:HyperLink ID="HyperLink1" runat="server" NavigateUrl="~/Terms and Conditions.txt"
      >Terms and Conditions</asp:HyperLink>
  </td>
</tr>

```

```
</td>  
</tr>  
</table>  
</div>  
</form>  
</body>  
</html>
```

Output :



localhost:49677/WebForm1.aspx

First Name

Last Name

UserName

Password

Confirm Password

Gender

DOB

Mobile No.

Security Question

Answer

Location

[Terms and Conditions](#)

Q2.Create a website which validates the above designed webform using the validation control:

- a. Required Field Validation
- b. Range Validation
- c. Compare Validation
- d. Regular Expression
- e. Custom Validation
- f. Summary Validation.

Ans:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"  
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">  
  
<head runat="server">  
    <title></title>  
  
</head>  
  
<body>  
    <form id="form1" runat="server">  
        <div>  
            <table align="center" cellpadding="10">  
                <tr>  
                    <td class="style2">  
                        <asp:Label ID="Label1" runat="server" Text="First Name"></asp:Label>  
                    </td>  
                    <td class="style3">  
                        <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
```

```

<asp:RequiredFieldValidator ID="RequiredFieldValidator1" runat="server"
    ErrorMessage="name is required" ForeColor="#FF5050" ControlToValidate="TextBox1"
    Display="Dynamic" SetFocusOnError="True"></asp:RequiredFieldValidator>

<asp:RegularExpressionValidator ID="RegularExpressionValidator2" runat="server"
    ControlToValidate="TextBox1" Display="Dynamic" ErrorMessage="can't enter number"
    ForeColor="Red" ValidationExpression="^[a-zA-Z'\s]{1,50}">
</asp:RegularExpressionValidator>

</td>
</tr>

<tr>
<td class="style1">
    <asp:Label ID="Label2" runat="server" Text="Last Name"></asp:Label>
</td>

<td>
    <asp:TextBox ID="TextBox2" runat="server"></asp:TextBox>
    <asp:RequiredFieldValidator ID="RequiredFieldValidator2" runat="server"
        ErrorMessage="last name is required" ForeColor="Red" ControlToValidate="TextBox2">
    </asp:RequiredFieldValidator>

    <asp:RegularExpressionValidator ID="RegularExpressionValidator3" runat="server"
        ControlToValidate="TextBox2" Display="Dynamic" ErrorMessage="can't enter number"
        ForeColor="Red" ValidationExpression="^[a-zA-Z'\s]{1,50}">
    </asp:RegularExpressionValidator>
</td>

```

```

</tr>

<tr>
<td class="style1">
<asp:Label ID="Label3" runat="server" Text="UserName"></asp:Label>
</td>

<td>
<asp:TextBox ID="TextBox3" runat="server"></asp:TextBox>
<asp:RequiredFieldValidator ID="RequiredFieldValidator3" runat="server"
ErrorMessage="username is required" ForeColor="#FF3300" ControlToValidate="TextBox3"
></asp:RequiredFieldValidator>
</td>
</tr>

<tr>
<td class="style1">
<asp:Label ID="Label4" runat="server" Text="Password"></asp:Label>
</td>

<td>
<asp:TextBox ID="password" TextMode="Password" runat="server"></asp:TextBox>
<asp:RequiredFieldValidator ID="RequiredFieldValidator4" runat="server"
ErrorMessage="password is required" ForeColor="#FF3300" ControlToValidate="password"
></asp:RequiredFieldValidator>

<asp:CustomValidator ID="CustomValidator1" runat="server"

```

```

ClientValidationFunction="test_str" ErrorMessage="CustomValidator"
onservervalidate="CustomValidator1_ServerValidate" ForeColor="Red">
</asp:CustomValidator>
</td>
</tr>

<tr>
<td class="style1">
<asp:Label ID="Label5" runat="server" Text="Confirm Password" ></asp:Label>
</td>

<td>
<asp:TextBox ID="confirm_password" TextMode="Password" runat="server">
</asp:TextBox>

<asp:CompareValidator ID="CompareValidator1" runat="server"
ErrorMessage="password don't match" ControlToCompare="password"
ControlToValidate="confirm_password" Display="Dynamic" SetFocusOnError="True" >
</asp:CompareValidator>
</td>
</tr>

<tr>
<td class="style1">
<asp:Label ID="Label6" runat="server" Text="Gender"></asp:Label>
</td>

```

```

<td>

<asp:DropDownList ID="DropDownList1" runat="server">

<asp:ListItem>MALE</asp:ListItem>

<asp:ListItem>FEMALE</asp:ListItem>

<asp:ListItem>OTHER</asp:ListItem>

</asp:DropDownList>

</td>

</tr>

<tr>

<td>

<asp:Label ID="Label7" runat="server" Text="DOB"></asp:Label>

</td>

<td>

<asp:TextBox ID="TextBox6" TextMode="Date" runat="server" ></asp:TextBox>

<asp:RangeValidator ID="RangeValidator1" runat="server" ControlToValidate="TextBox6"
ErrorMessage="AGE NOT IN RANGE" Type="Date" ></asp:RangeValidator>

</td>

</tr>

<tr>

<td>

<asp:Label ID="Label8" runat="server" Text="Mobile No." ></asp:Label>

</td>

```

```

<td>
<asp:TextBox ID="TextBox7" runat="server"></asp:TextBox>
<asp:RegularExpressionValidator ID="RegularExpressionValidator1" runat="server"
ControlToValidate="TextBox7" ErrorMessage="mobile no. not valid"
ValidationExpression="^([6-9]{1})([0- 9]{9})$" ></asp:RegularExpressionValidator>
</td>
</tr>
<tr align="center">
<td>
<asp:Button ID="Button4" runat="server" Text="reset" />
</td>
<td>
<asp:Button ID="Button3" runat="server" Text="submit" onclick="Button3_Click"/>
</td>
</tr>

<tr align="center">
<td colspan="2">
<asp:ValidationSummary ID="ValidationSummary1" runat="server" />
</td>
</tr>
</table>
</div>
</form>
<p>&nbsp;</p>
</body>
</html>

```

Cs file :

```
using System;

using System.Collections.Generic; using System.Linq;

using System.Web; using System.Web.UI;

using System.Web.UI.WebControls; namespace as2_q2{

public partial class WebForm1 : System.Web.UI.Page{

protected void Page_Load(object sender, EventArgs e){

RangeValidator1.MinimumValue = DateTime.Now.AddYears(-45).ToString();

RangeValidator1.MaximumValue = DateTime.Now.AddYears(-18).ToString();

}

public static bool storng_password(string text){

bool hasUpper = false; bool hasLower = false; bool hasDigit = false,int8=false; int count=0;

for (int i = 0; i < text.Length && !(hasUpper && hasLower && hasDigit); i++){

char c = text[i]; count++;

if (!hasUpper) hasUpper = char.IsUpper(c); if (!hasLower) hasLower = char.IsLower(c); if (!hasDigit)

hasDigit = char.IsDigit(c);

}

if (count>=8){ int8 = true; }

return hasUpper && hasLower && int8;

}

public static bool hasSpecialChar(string input){

string specialChar = @"\|!#$%&/()=?»«@£$€{.-';<>_"; foreach (var item in specialChar){

if (input.Contains(item)) return true; }

return false;

}

}
```

```

protected void CustomValidator1_ServerValidate(object source, ServerValidateEventArgs args){

bool test2 = hasSpecialChar(password.Text); bool test= storng_password(password.Text); if (test ==
true && test2==true){

args.IsValid = true;

}

else{

args.IsValid = false;

CustomValidator1.ErrorMessage = "password dos't meet requierment";}

}

protected void Button3_Click(object sender, EventArgs e){}}

```

Output :

localhost:49678/WebForm1.aspx

First Name	<input type="text"/>	name is required
Last Name	<input type="text"/>	last name is required
UserName	<input type="text"/>	username is required
Password	<input type="password" value="*****"/>	password dos't meet requierment
Confirm Password	<input type="text"/>	
Gender	<input type="text" value="MALE"/>	
DOB	<input type="text" value="dd / mm / YYYY"/>	
Mobile No.	<input type="text"/>	
<input type="button" value="reset"/> <input type="button" value="submit"/>		
<ul style="list-style-type: none"> • name is required • last name is required • uscmamec is required • password dos't meet requierment 		

Q3.Create a Webform to retrieve data from one Webform and display it to another webform.

Ans:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"  
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-  
transitional.dtd">  
  
<html xmlns="http://www.w3.org/1999/xhtml">  
  
<head runat="server">  
  
<title></title>  
  
</head>  
  
<body>  
  
<form id="form1" runat="server">  
  
<div>  
  
<table align="center">  
  
<tr>  
  
<td>  
  
<asp:Label ID="Label1" runat="server" Text="username"></asp:Label>  
  
</td>  
  
<td>  
  
<asp:TextBox ID="user" runat="server"></asp:TextBox>  
  
</td>  
  
</tr>  
  
<tr>  
  
<td>  
  
<asp:Label ID="Label2" runat="server" Text="password"></asp:Label>  
  
</td>  
  
<td>
```

```

<asp:TextBox ID="password" runat="server"></asp:TextBox>

</td>
</tr>

<tr>
<td>

<asp:Button ID="Button2" runat="server" Text="reset" onclick="Button2_Click" />

</td>
<td>

<asp:Button ID="Button1" runat="server" Text="login" onclick="Button1_Click" />

</td>
</tr>
</table>
</div>
</form>
</body>
</html>

```

File- login.aspx.cs using System;

```

using System.Collections.Generic; using System.Linq;
using System.Web; using System.Web.UI;
using System.Web.UI.WebControls; namespace as2_q3{
public partial class login : System.Web.UI.Page{
protected void Page_Load(object sender, EventArgs e){}
protected void Button1_Click(object sender, EventArgs e){
string url; url="~/validation.aspx"; Server.Transfer(url);}
protected void Button2_Click(object sender, EventArgs e){
password.Text = user.Text = " ";}}}

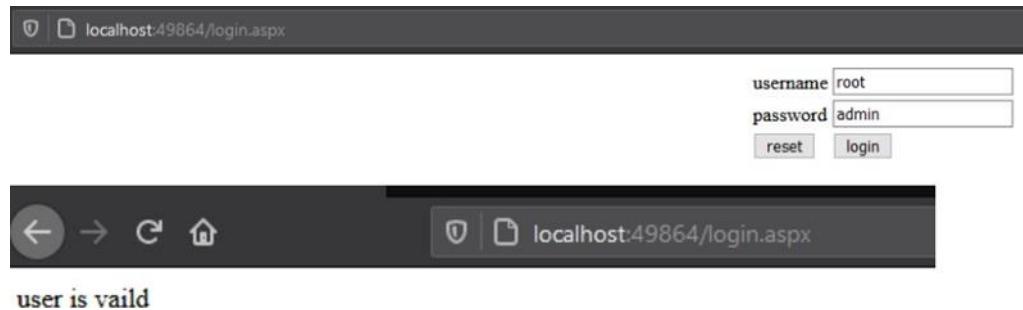
```

```

File- Validation.aspx using System;
using System.Collections.Generic; using System.Linq;
using System.Web; using System.Web.UI;
using System.Web.UI.WebControls; namespace as2_q3{
public partial class success : System.Web.UI.Page{
protected void Page_Load(object sender, EventArgs e){
string user, pass; user=Request.Form["user"];
pass=Request.Form["password"];
if (user == "root" && pass == "admin"){
Response.Write("user is valid");
}
else
Response.Write("user not valid");
}}}

```

Output :



Q4.Design a web form to save file into the upload folder using File Upload control and display the following information of uploaded file (a. Name of file b. Type of file c. Size of file).

Ans:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"  
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-  
transitional.dtd">  
  
<html xmlns="http://www.w3.org/1999/xhtml">  
  
<head runat="server">  
  
<title></title>  
  
</head>  
  
<body>  
  
<form id="form1" runat="server">  
  
<div>  
  
<asp:FileUpload ID="FileUpload1" runat="server" />  
  
<asp:Button ID="Button1" runat="server" onclick="Button1_Click" Text="upload" />  
  
</div>  
  
<asp:Label ID="Label1" runat="server"></asp:Label>  
  
<br />  
  
<br />  
  
<asp:Label ID="Label2" runat="server" Text="Label"></asp:Label>  
  
<br />  
  
</form>  
  
</body>  
  
</html>
```

File- upload.aspx.cs

```
using System; using System.Text;
using System.Collections.Generic;
using System.Linq; using System.Web; using System.Web.UI;
using System.Web.UI.WebControls; namespace as2_q6
{
    public partial class upload : System.Web.UI.Page
    {
        protected void Page_Load(object sender, EventArgs e)
        {
            Label1.Visible = false;
            Label2.Visible = false;
        }

        protected void Button1_Click(object sender, EventArgs e){
            string filename;
            String savePath = @"C:\Users\hack_this\Desktop\upload\"; filename = FileUpload1.FileName;
            if (FileUpload1.HasFile){
                try{
                    Label1.Visible = true;
                    Label1.Text=" Uploading file:" + filename;
                    //saving the file
                    FileUpload1.SaveAs(savePath + filename); Label1.Visible = false;
                    //Showing the file information Label2.Visible = true;
                    Label2.Text = " filename is :" + FileUpload1.PostedFile.FileName; Label2.Text += "<br/> File type:" +
                    FileUpload1.PostedFile.ContentType;
                    Label2.Text += "<br/> File length:" + FileUpload1.PostedFile.ContentLength + "byte's";
                    Label2.Text += "<br/> File name:" + FileUpload1.PostedFile.FileName;
                }
            }
        }
    }
}
```

```
}

catch (Exception ex){

Label1.Visible = true; Label2.Visible = false; Label1.Text=<br/> Error <br/>;

Label1.Text +=="Unable to save file <br/>" + ex.Message;

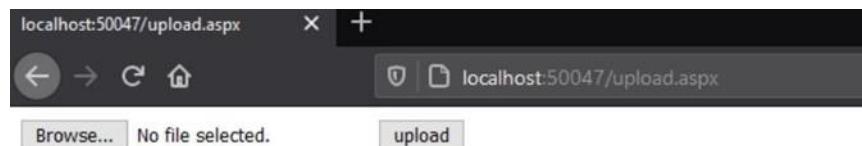
} }

else{

Label2.Visible = true;

}}}}
```

Output :



Q5.Design a web form which shows the use of Navigation Controls.

Ans:

```
<!DOCTYPE html

PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head runat="server">

<title></title>

<asp:ContentPlaceHolder ID="head" runat="server">

</asp:ContentPlaceHolder>

</head>

<body>

<form id="form1" runat="server">

<div></div><div><br />

<asp:SiteMapPath ID="SiteMapPath1" runat="server">

</asp:SiteMapPath>

<br /><br /><br />

<asp:TreeView ID="TreeView1" runat="server">

<Nodes>

<asp:TreeNode Text="india" Value="india">

<asp:TreeNode Text="UtterPradesh" Value="UtterPradesh">

<asp:TreeNode Text="ayodhya" Value="ayodhya"></asp:TreeNode>

<asp:TreeNode Text="Kanpur" Value="Kanpur"></asp:TreeNode>

</asp:TreeNode>

<asp:TreeNode Text="Bihar" Value="Bihar"></asp:TreeNode>

<asp:TreeNode Text="Delhi" Value="Delhi"></asp:TreeNode>
```

```

<asp:TreeNode Text="Kashmir" Value="Kashmir"></asp:TreeNode>

<asp:TreeNode Text="Mumbai" Value="Mumbai"></asp:TreeNode>

<asp:TreeNode Text="Rajasthan" Value="Rajasthan">

<asp:TreeNode Text="Jodhpur" Value="Jodhpur"></asp:TreeNode>

<asp:TreeNode Text="Jaipur" Value="Jaipur"></asp:TreeNode>

<asp:TreeNode Text="alvaer" Value="alvaer"></asp:TreeNode>

<asp:TreeNode Text="Bikaner" Value="Bikaner"></asp:TreeNode>

</asp:TreeNode>

</asp:TreeNode>

</Nodes>

</asp:TreeView>

<asp:Menu ID="Menu1" runat="server">

<Items>

<asp:MenuItem Text="Country" Value="Country">

<asp:MenuItem NavigateUrl="~/india.aspx" Text="India" Value="India">

<asp:MenuItem NavigateUrl="~/Delhi.aspx" Text="Delhi" Value="Delhi">

</asp:MenuItem>

<asp:MenuItem NavigateUrl="~/Rajasthan.aspx" Text="Rajasthan" Value="Rajasthan">

</asp:MenuItem>

<asp:MenuItem NavigateUrl="~/Bihar.aspx" Text="Bihar" Value="Bihar">

</asp:MenuItem>

</asp:MenuItem>

<asp:MenuItem NavigateUrl="~/Us.aspx" Text="Us" Value="Us"></asp:MenuItem>

<asp:MenuItem NavigateUrl="~/Japan.aspx" Text="Japan" Value="Japan">

</asp:MenuItem>

<asp:MenuItem NavigateUrl="~/Rasia.aspx" Text="Rasia" Value="Rasia">

</asp:MenuItem>

```

```

</asp:MenuItem>
</Items>
</asp:Menu>
<br /><br /><br /></div>

<asp:ContentPlaceHolder ID="ContentPlaceHolder1" runat="server">
<p>&nbsp;</p>
</asp:ContentPlaceHolder>
</form>
</body>
</html>

```

File- XML

```

<?xml version="1.0" encoding="utf-8" ?>
<application>
<homepage title="Country" value="default.aspx">
<page title ="INDIA" value="default.aspx">
<subpage title ="up" value="default.aspx"/>
<subpage title ="delhi" value="default.aspx"/>
<subpage title ="mumbai" value="default.aspx"/>
<subpage title ="kolkata" value="default.aspx"/>
</page>
<page title ="US" value="default.aspx"/>
<page title ="CHNIA" value="default.aspx"/>
<page title ="JAPAN" value="default.aspx"/>
</homepage>
</application>

```

File- webform.aspx

```
<%@ Page Title="" Language="C#" MasterPageFile="~/Site1.Master" AutoEventWireup="true"
CodeBehind="WebForm1.aspx.cs"
Inherits="as2_q10.WebForm1" %>

<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="server">
</asp:Content>

<asp:Content ID="Content2" ContentPlaceHolderID="ContentPlaceHolder1" runat="server">
</asp:Content>
```

File- Bihar.aspx

```
<%@ Page Title="" Language="C#" MasterPageFile="~/Site1.Master" AutoEventWireup="true"
CodeBehind="Bihar.aspx.cs"
Inherits="as2_q10.WebForm1" %>

<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="server">
</asp:Content>

<asp:Content ID="Content2" ContentPlaceHolderID="ContentPlaceHolder1" runat="server">
</asp:Content>
```

File- Delhi.aspx

```
<%@ Page Title="" Language="C#" MasterPageFile="~/Site1.Master" AutoEventWireup="true"
CodeBehind="Delhi.aspx.cs"
Inherits="as2_q10.WebForm1" %>

<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="server">
</asp:Content>

<asp:Content ID="Content2" ContentPlaceHolderID="ContentPlaceHolder1" runat="server">
</asp:Content>
```

File – India.aspx

```
<%@ Page Title="" Language="C#" MasterPageFile="~/Site1.Master" AutoEventWireup="true"
CodeBehind="india.aspx.cs"

Inherits="as2_q10.WebForm1" %>

<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="server">

</asp:Content>

<asp:Content ID="Content2" ContentPlaceHolderID="ContentPlaceHolder1" runat="server">

</asp:Content>
```

File- Japan.aspx

```
<%@ Page Title="" Language="C#" MasterPageFile="~/Site1.Master" AutoEventWireup="true"
CodeBehind="Japan.aspx.cs"

Inherits="as2_q10.WebForm1" %>

<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="server">

</asp:Content>

<asp:Content ID="Content2" ContentPlaceHolderID="ContentPlaceHolder1" runat="server">

</asp:Content>
```

File- Nav_controls.aspx

```
<%@ Page Title="" Language="C#" MasterPageFile="~/Site1.Master" AutoEventWireup="true"
CodeBehind="nav_control.aspx.cs"

Inherits="as2_q10.WebForm1" %>

<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="server">

</asp:Content>

<asp:Content ID="Content2" ContentPlaceHolderID="ContentPlaceHolder1" runat="server">

</asp:Content>
```

File- Rajasthan.aspx

```
<%@ Page Title="" Language="C#" MasterPageFile="~/Site1.Master" AutoEventWireup="true"
CodeBehind="Rajasthan.aspx.cs"
```

```
Inherits="as2_q10.WebForm1" %>

<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="server">
</asp:Content>

<asp:Content ID="Content2" ContentPlaceHolderID="ContentPlaceHolder1" runat="server">
</asp:Content>
```

File- Rasia.aspx

```
<%@ Page Title="" Language="C#" MasterPageFile="~/Site1.Master" AutoEventWireup="true"
CodeBehind="Rasia.aspx.cs"

Inherits="as2_q10.WebForm1" %>

<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="server">
</asp:Content>

<asp:Content ID="Content2" ContentPlaceHolderID="ContentPlaceHolder1" runat="server">
</asp:Content>
```

File- us.aspx

```
<%@ Page Title="" Language="C#" MasterPageFile="~/Site1.Master" AutoEventWireup="true"
CodeBehind="Us.aspx.cs"

Inherits="as2_q10.WebForm1" %>

<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="server">
</asp:Content><asp:Content ID="Content2" ContentPlaceHolderID="ContentPlaceHolder1"
runat="server">
</asp:Content>
```

File- web.sitemap

```
<?xml version="1.0" encoding="utf-8" ?>

<siteMap xmlns="http://schemas.microsoft.com/AspNet/SiteMap-File-1.0">

<siteMapNode url("~/nav_control.aspx" title="Country" description="">
<siteMapNode url="India.aspx" title="India" description="">
```

```

<siteMapNode url="Delhi.aspx" title="Delhi" description="" />
<siteMapNode url="Rajasthan.aspx" title="Rajasthan" description="" />
<siteMapNode url="Bihar.aspx" title="Bihar" description="" />
</siteMapNode>
<siteMapNode url="Us.aspx" title="Us" description="" />
<siteMapNode url="Japan.aspx" title="Japan" description="" />
<siteMapNode url="Rasia.aspx" title="Rasia" description="" />
</siteMapNode>
</siteMap>

```

Output :



[Country](#) > Rasia

```


- india
  - UtterPradesh
    - ayodhya
    - Kanpur
  - Bihar
  - Delhi
  - Kashmir
  - Mumbai
- Rajasthan
  - Jodhpur
  - Jaipur
  - alvaer
  - Bikaner

```

[Country](#) ▾

Q6. Design a web form using calendar control and display the monthly events (Holidays).

Ans:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head runat="server">

<title></title>

</head>

<body>

<form id="form1" runat="server">

<div>

<p style="text-align: center">

<b></b>

<asp:Label ID="Label1" runat="server" Font-Bold="True" Font-Names="Arial Black"
FontSize="Medium"
ForeColor="#0066FF">Indian List of Holidays 2021</asp:Label><br /></b>

</p>

<center>

<asp:Calendar ID="Calendar1" runat="server" BackColor="#FFFFCC" BorderColor="#FFCC66"
BorderWidth="1px" Font-Names="Verdana" Font-Size="8pt" ForeColor="#663399"
OnDayRender="Calendar1_DayRender" OnSelectionChanged="Calendar1_SelectionChanged"
OnVisibleMonthChanged="Calendar1_VisibleMonthChanged" Height="285px" Width="557px"
DayNameFormat="Shortest" ShowGridLines="True">

<SelectedDayStyle BackColor="#CCCCFF" Font-Bold="True" />

<TodayDayStyle BackColor="#FFCC66" ForeColor="White" />

<OtherMonthDayStyle ForeColor="#CC9966" />


```

```

<NextPrevStyle Font-Size="9pt" ForeColor="#FFFFCC" />
<DayHeaderStyle Font-Bold="True" BackColor="#FFCC66" Height="1px" />
<SelectorStyle BackColor="#FFCC66" />
<TitleStyle BackColor="#990000" Font-Bold="True" Font-Size="9pt" ForeColor="#FFFFCC" />
</asp:Calendar>
</center>
<br />
<b></b>
<asp:Label ID="LabelAction" runat="server"></asp:Label><br />
</b>
</div>
<p>
&nbsp;
</p>
</form>
</body>
</html>

```

File- Calendar.aspx.cs

```

using System;
using System.Configuration; using System.Data;
using System.Linq; using System.Web;
using System.Web.Security; using System.Web.UI;
using System.Web.UI.HtmlControls; using System.Web.UI.WebControls;
using System.Web.UI.WebControls.WebParts; using System.Xml.Linq;
using System.Collections; namespace Assignment2{
public partial class calender : System.Web.UI.Page{

```

```

Hashtable HolidayList;

protected void Page_Load(object sender, EventArgs e){

HolidayList = Getholiday();

Calendar1.FirstDayOfWeek = FirstDayOfWeek.Sunday; Calendar1.NextPrevFormat =
NextPrevFormat.ShortMonth; Calendar1.TitleFormat = TitleFormat.Month;
Calendar1.ShowGridLines = true; Calendar1.DayStyle.Height = new Unit(50);
Calendar1.DayStyle.Width = new Unit(150);

Calendar1.DayStyle.HorizontalAlign = HorizontalAlign.Center; Calendar1.DayStyle.VerticalAlign =
VerticalAlign.Middle; Calendar1.OtherMonthDayStyle.BackColor = System.Drawing.Color.AliceBlue;

}

private Hashtable Getholiday(){

Hashtable holiday = new Hashtable(); holiday["01-01-2022"] = "<br>New Year";

holiday["05-01-2022"] = "<br>Guru Govind Singh Jayanti"; holiday["08-01-2022"] = "<br>Muharam
(Al Hijra)"; holiday["14-01-2022"] = "<br>Pongal";

holiday["26-01-2022"] = "<br>Republic Day"; holiday["22-02-2022"] = "<br>Maha Shivaratri";
holiday["10-03-2022"] = "<br>Milad un Nabi";

holiday["21-03-2022"] = "<br>Holi";

holiday["21-03-2022"] = "<br>Telugu New Year"; holiday["03-04-2022"] = "<br>Ram Navmi";
holiday["07-04-2022"] = "<br>Mahavir Jayanti"; holiday["10-04-2022"] = "<br>Good Friday";
holiday["12-04-2022"] = "<br>Easter";

holiday["14-04-2022"] = "<br>Tamil New Year and Dr Ambedkar Birth Day"; holiday["01-05-2022"] =
"<br>May Day";

holiday["09-05-2022"] = "<br>Buddha Jayanti and Buddha Purnima"; holiday["24-06-2022"] =
"<br>Rath yatra";

holiday["13-08-2022"] = "<br>Krishna Jayanthi"; holiday["14-08-2022"] = "<br>Janmashtami";
holiday["15-08-2022"] = "<br>Independence Day"; holiday["19-08-2022"] = "<br>Parsi New Year";
holiday["23-08-2022"] = "<br>Vinayaka Chaturthi"; holiday["02-09-2022"] = "<br>Onam";

holiday["05-09-2022"] = "<br>Teachers Day"; holiday["21-09-2022"] = "<br>Ramzan"; holiday["27-
09-2022"] = "<br>Ayutha Pooja";

holiday["28-09-2022"] = "<br>Vijaya Dasami (Dusherra)"; holiday["02-10-2022"] = "<br>Gandhi
Jayanti"; holiday["17-10-2022"] = "<br>Diwali & Govardhan Puja"; holiday["19-10-2022"] =
"<br>Bhaidooj";

holiday["02-11-2022"] = "<br>Guru Nanak Jayanti"; holiday["14-11-2022"] = "<br>Children's Day";
holiday["28-11-2022"] = "<br>Bakrid";

```

```
holiday["25-12-2022"] = "<br>Christmas"; holiday["28-12-2022"] = "<br>Muharram"; return holiday;
}

protected void Calendar1_SelectionChanged(object sender, EventArgs e){

LabelAction.Text = "Date changed to :" + Calendar1.SelectedDate.ToShortDateString();

}

protected void Calendar1_VisibleMonthChanged(object sender, MonthChangedEventArgs e){

LabelAction.Text = "Month changed to :" + e.NewDate.ToShortDateString();

}

protected void Calendar1_DayRender(object sender, DayRenderEventArgs e){

if (HolidayList[e.Day.Date.ToShortDateString()] != null){

Literal literal1 = new Literal(); literal1.Text = "<br->"; e.Cell.Controls.Add(literal1); Label label1 = new Label();

label1.Text = (string)HolidayList[e.Day.Date.ToShortDateString()]; label1.Font.Size = new FontUnit(FontSize.Small); e.Cell.Controls.Add(label1);

}}}}
```

Output :

Feb		March					Apr
Su	Mo	Tu	We	Th	Fr	Sa	
28	1	2	3	4	5	6	
2	8	9	10 Milad un Nabi	11	12	13	
14	15	16	17	18	19	20	
21 Telugu New Year	22	23	24	25	26	27	
28	29	30	31	1	2	3 Ram Navmi	
4	5	6	7 Mahavir Jayanti	8	9	10 Good Friday	

Assignment 4

Q1. Jquery Element selector, ID selector, Class selector.

Ans:

Element selector :-

```
<html>
<head>
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>
<script>
$(document).ready(function () {
    $("button").click(function () {
        $("h2").css("color", "green");
    });
});
</script>
</head>

<body>
<h2>color change</h2>
<button>Change text color</button>
</body>
</html>
```

Output:

color change

Change text color

color change

Change text color

Id selector :-

```
<html>
  <head> </head>
  <body>
    <h1>ID Selector</h1>
    <p>This is Some text</p>
    <p id="p1">This is some text</p>
    <button id="demo">Click Me</button>
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
    <script>
      $(document).ready(function () {
        $("#demo").click(function () {
          $("#p1").css("border", "2px solid blue");
        });
      });
    </script>
  </body>
</html>
```

Output:

ID Selector ID Selector

This is Some text

This is Some text

This is some text

This is some text

Click Me

Click Me

Class selector :-

```
<html>
  <head>
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
    <script>
      $(document).ready(function () {
        $("p.intro").css("background-color", "orange");
      });
    </script>
  </head>
  <body>
    <h1>Welcome to My Homepage</h1>
    <p class="intro">My name is Robin.</p>
    <p>I live in jaipur.</p>
    <p class="intro">My name is jolly.</p>
    <p>I live in Dausa.</p>
  </body>
</html>
```

Output :

Welcome to My Homepage

My name is Robin.

I live in jaipur.

My name is jolly.

I live in Dausa.

Q2. Write a code using jquery the value of the input element is set by val() method by selecting the input element from its ID.

Ans:

```
<html>
<head>
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
<script>
$(document).ready(function () {
    $("button").click(function () {
        $("#inputID").val(function (n, c) {
            return c + " Griffin";
        });
    });
});
</script>
</head>
<body>
<p>Name: <input id="inputID" type="text" name="user" value="robin" /></p>
<button>Set the value of the input field</button>
</body>
</html>
```

Output:

Name: <input type="text" value="robin"/>	Name: <input type="text" value="robin Griffin"/>
<input type="button" value="input field"/>	<input type="button" value="input field"/>

Q3. Write a program in jquery using have hide() and show() methods which are used to hide and show Html elements respectively.

Ans:

```
<html>
  <head>
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
    <script>
      $(document).ready(function () {
        $("#hide").click(function () {
          $("p").hide();
        });
        $("#show").click(function () {
          $("p").show();
        });
      });
    </script>
  </head>
  <body>
    <p>If you click "Hide", I will disappear.</p>
    <button id="hide">Hide</button>
    <button id="show">Show</button>
  </body>
</html>
```

Output :

If you click "Hide", I will disappear.

Q4. Write Jquery performs the following Events:

1. Moving mouse over an element
2. Click mouse over an element.

Ans:

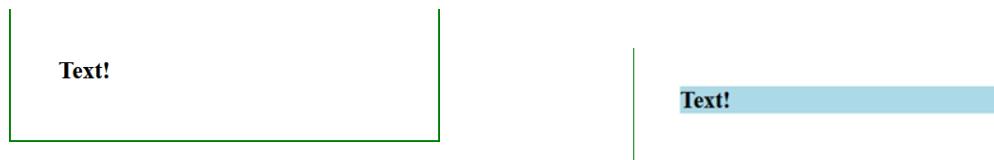
1. Moving mouse over an element :-

```
<html>
  <head>
    <title>The mouseover Method</title>
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>

    <!-- jQuery code to show the working of this method -->
    <script>
      $(document).ready(function () {
        $("p").mouseover(function () {
          $("p").css("background-color", "lightblue");
        });
      });
    </script>
    <style>
      body {
        width: 280px;
        padding: 40px;
        height: 30px;
        border: 2px solid green;
        font-weight: bold;
        font-size: 20px;
      }
    </style>
  </head>
```

```
<body>
  <!-- move over this text to see the change -->
  <p>Text!</p>
</body>
</html>
```

Output:



2. Click mouse over an element :-

```
<html>
  <head>
    <title>The mouseover Method</title>

    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>

    <!-- jQuery code to show the working of this method -->

    <script>
      $(document).ready(function () {
        $("p").mouseover(function () {
          $("p").css("background-color", "lightgreen");
        });
      });
    </script>
```

```
<style>
body {
    width: 280px;
    padding: 40px;
    height: 30px;
    border: 2px solid green;
    font-weight: bold;
    font-size: 20px;
}
</style>
</head>

<body>
<!-- move over this text to see the change -->

<p>Hover on the Text!</p>
</body>
</html>
```

Output :



Q5. Write Jquery program using animation() method.

Ans:

```
<html>

<head>

<script src="http://ajax.googleapis.com/ajax/libs/jquery/1.11.2/jquery.min.js"></script>

<script>

$(document).ready(function () {

    $("button").click(function () {

        $("div").animate({ left: "450px" });

    });

});

</script>

</head>

<body>

<button>Start Animation</button>

<p>A simple animation example:</p>

<div style=" background: orange;

height: 100px;

width: 100px;

position: absolute;">

</div>

</body>

</html>
```

Output :

A simple animation example:



Q6. Write Jquery code to perform following with AJAX method :

1. AJAX load() method
2. AJAX get() method
3. AJAX post() method.

Ans:

1. **AJAX load() method :**

```
<html>

<head>

<meta name="viewport" content="width=device-width" />

<script

type="text/javascript"

src="https://ajax.googleapis.com/ajax/libs/jquery/1.11.2/jquery.min.js"

></script>

<script type="text/javascript">

$(document).ready(function () {

    $("#loadBtn").click(function () {

        $("#msgDiv").load(

            "/jquery/getdata", // url

            { name: "bill" }, // data

            function (data, status, jqXGR) {

                // callback function alert('data loaded');

            });

        });

    });

</script>

</head>
```

```

<body>
  <h1>jQuery load</h1>
  <input type="button" id="loadBtn" value="Load Data" />
  <div id="msgDiv"></div>
</body>
</html>

```

Output :

jQuery load

Load Data



2. AJAX get() method :

```

<html>
  <head>
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
  </head>
  <body>
    <script>
      $(document).ready(function () {
        $("button").click(function () {
          $.get("demo.txt", function (data, status) {
            alert("Data: " + data + "\nStatus: " + status);
          });
        });
      });
    </script>
  </body>
</html>

```

```
</head>

<body>
    <button>request the result</button>
</body>
</html>
```

Output :



request the result

3. AJAX post() method :

```
<html>
    <head>
        <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
        <script>
            $(document).ready(function () {
                $("button").click(function () {
                    $.post(
                        "demo.asp",
                        {
                            name: "Cristian Ionescu",
                            city: "Bucharest",
                        },
                        function (data, status) {

```

```
        alert("Data: " + data + "\nStatus: " + status);  
    }  
});});});  
</script>  
</head>
```

```
<body>  
    <button>Click me!</button>  
</body>  
</html>
```

Output :

