

Data Structure and Algorithm Practicals

1. Demonstrate doubly linked list

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<!DOCTYPE html>
<html>
<head>
  <title>Doubly Linked List</title>
  <script type="text/javascript">
    class node{
      constructor(){
        this.info=document.getElementById("intvalue").value;
        this.prev=null;
        this.next=null;
      }
    }
    class doublylist{
      constructor()
      {
        this.head=null;
        this.tail=null;
      }
      create()
      {
        var temp = new node();
        if(this.head==null)
        {
          temp.prev=null;
          temp.next=null;
          this.head=temp;
          this.tail=temp;
        }
        else
        {
          temp.prev=this.tail;
          temp.next=null;
          this.tail.next=temp;
          this.tail=temp;
        }
        alert("Element Added");
        document.getElementById("intvalue").value="";
      }
      insertfirst()
      {
        var temp = new node();

        if(this.head==null)
        {
          temp.prev=null;
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        temp.next=null;
        this.head=temp;
        this.tail=temp;
    }
    else
    {
        temp.prev=null;
        temp.next=this.head;
        this.head.prev=temp;
        this.head=temp;
    }
    alert("Element Added At First Position");

    document.getElementById("intvalue").value="";
}
insertlast()
{
    var temp = new node();
    if(this.head==null)
    {
        temp.prev=null;
        temp.next=null;
        this.head=temp;
        this.tail=temp;
    }
    else
    {
        temp.prev=this.tail;
        temp.next=null;
        this.tail.next=temp;
        this.tail=temp;
    }
    alert("Element Added At Last Position");

    document.getElementById("intvalue").value="";
}

deletefirst()
{
    if(this.head==null)
    {
        alert("List Is Empty.");
    }
    else
    {
        var deletedelement = this.head.info;
        this.head=this.head.next;
    }
}

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        alert("Element Deleted From First Position. Deleted Element is "+deledelement);
    }
}
deletelast()
{
    var deledelement;
    if(this.head==null)
    {
        alert("List Is Empty.");
    }
    if(this.head.next==null)
    {
        deledelement=this.tail.info;
        this.head=null;
        this.tail=null;
        alert("Element Deleted From First Position. Deleted Element is "+deledelement);
    }
    else
    {
        deledelement=this.tail.info;
        this.tail.prev.next=null;
        this.tail=this.tail.prev;
        alert("Element Deleted From First Position. Deleted Element is "+deledelement);
    }
}

display()
{
    var curr=this.head;
    if(this.head==null)
    {
        document.getElementById("printhere").innerHTML="";
        alert("List is Empty.");
    }
    else
    {
        var str="Representation of Linked List is <br>Head <--> ";
        while(curr)
        {
            str=str+curr.info+" <--> ";
            curr=curr.next;
        }
        document.getElementById("printhere").innerHTML=str+"Tail";
    }
}

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    }
    reversedisplay()
    {
        var curr=this.tail;
        if(curr!=null)
        {
            var str="Representation of Linked List is <br>Tail <--> ";
            while(curr)
            {
                str=str+curr.info+" <--> ";
                curr=curr.prev;
            }
            document.getElementById("printhere").innerHTML=str+"Head";
        }
        else
        {
            document.getElementById("printhere").innerHTML="";
            alert("List is Empty.");
        }
    }
}
var obj =new doublylist();
</script>
</head>
<body>
    <label>Doubly Linked List</label><br><br>
    <label>Enter Value : </label>
    <input type="text" id="intvalue"><br>
    <button id="btninsert" onclick="obj.insertposition.call(obj)" style="display: none;">Insert</button>
    <button id="btndelete" onclick="obj.deleteposition.call(obj)" style="display: none;">Delete</button><br><br>
    <button onclick="obj.create.call(obj)">Create</button>
    <button onclick="obj.insertfirst.call(obj)">Insert At First</button>
    <button onclick="obj.insertlast.call(obj)">Insert At Last</button>
    <button onclick="obj.deletefirst.call(obj)">Delete At First</button>
    <button onclick="obj.deletelast.call(obj)">Delete At Last</button>
    <button onclick="obj.display.call(obj)">Display</button><br><br>
    <button onclick="obj.reversedisplay.call(obj)">Reverse Display</button><br>
    <br>
    <h3 id="printhere" style="font-family:Comic Sans MS;"></h3>
</body>
</html>

```