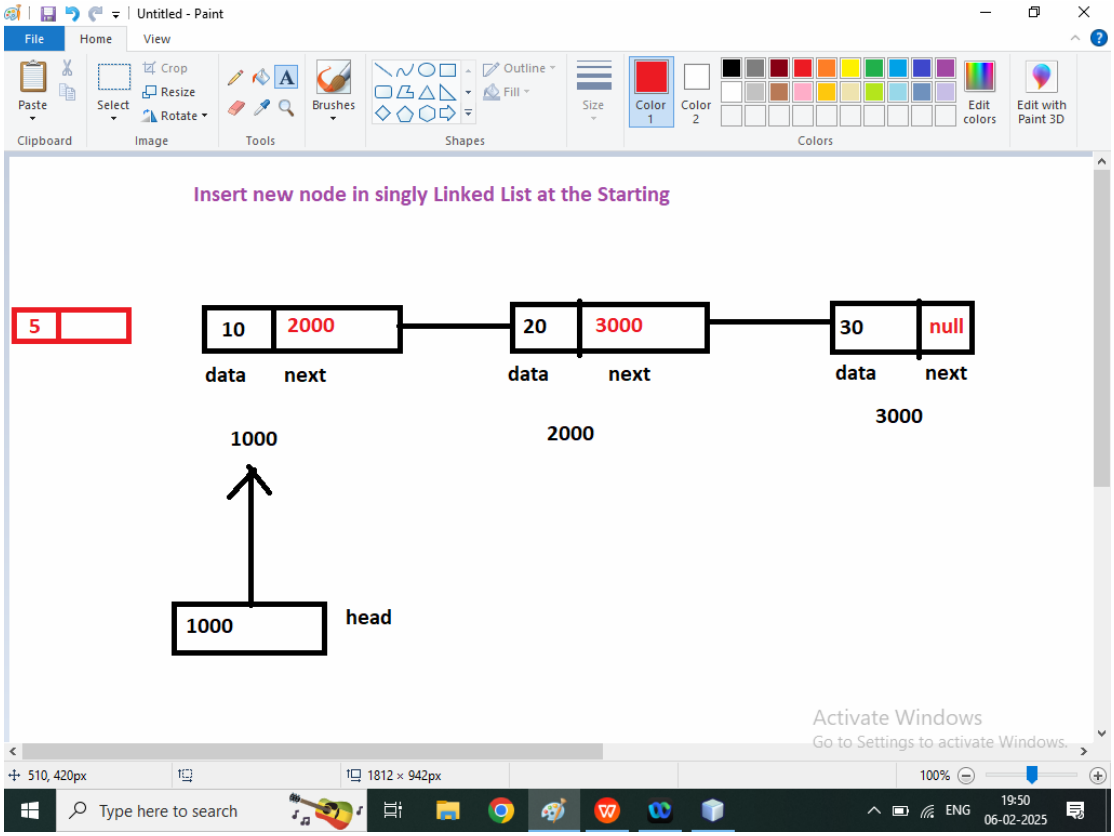
Q1. Write a Java Program to insert new node at starting of the Singly Linked List?



Algorithm of Insert New Node at Starting of the Singly Linked List

Step1: Create a New Node

Node newNode=new Node(data);

Step2: Making the new Node point to the current node

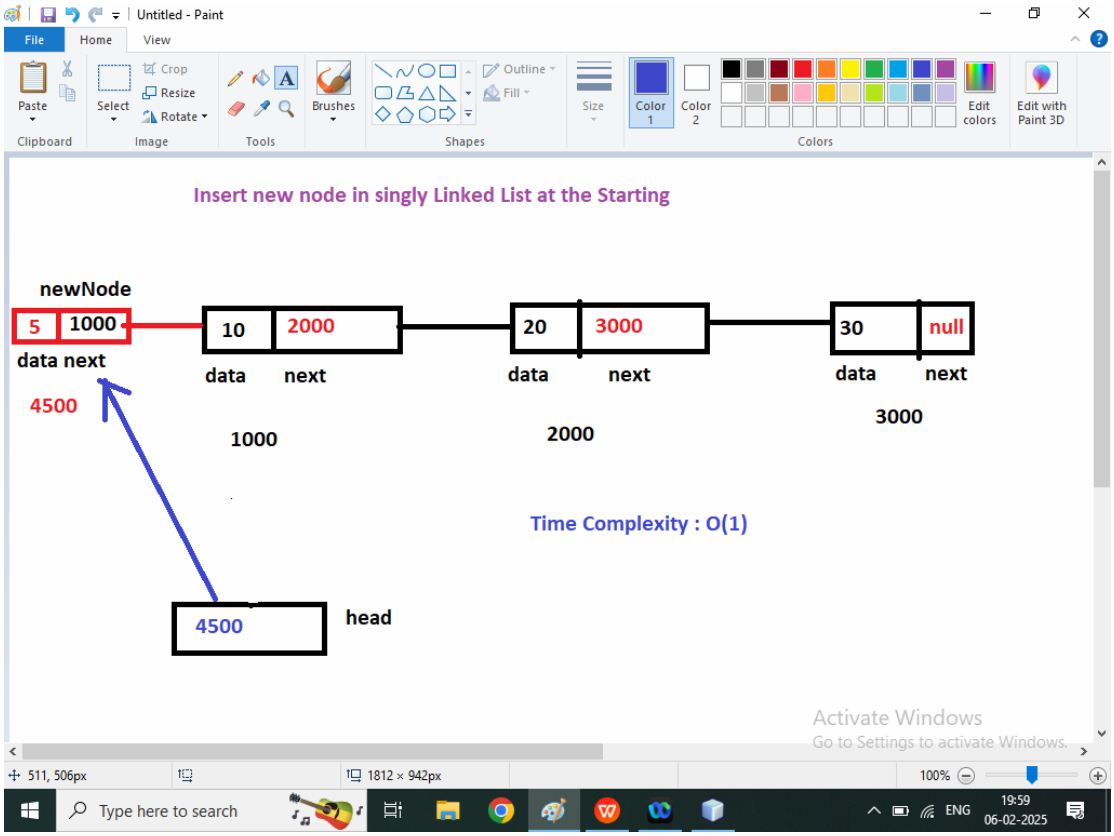
newNode.next=head;

Step3: Updating the head to the new Node

head=newNode;

Step4: Return updating head

return head;




```
/*
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 * and open the template in the editor.
 */
package dsafeb2025;

/**
 *
 * @author Admin
 */
public class Node {

   int data;
   Node next;

   public Node(int data) {
      this.data = data;
      next = null;
      System.out.println("Node created Success");
   }
public void display(Node head){
   Node temp=head;
   while(temp!=null){
      System.out.print("---->"+temp.data);//10--->20--->30--->40
      temp=temp.next;
   }
}

public Node addNodeAtStart(Node head,int data){
```

```
 //step1: Create a new Node
 Node newNode=new Node(data);
 //step2: Make Point NewNode to Current Node
 newNode.next=head;
 //step3: Update head
 head=newNode;
 //step4: return new head

  return head;

}
  public static void main(String[] args) {
     Node first = new Node(10);
     Node second = new Node(20);
     Node third = new Node(30);

     //Head point the first node of singly Linked List
     Node head=first;
     first.next=second;
     second.next=third;

     System.out.println("Print Data of Singly Linked List");
     System.out.println("===>"+first.data+"===>"+second.data+"===>"+third.data);
     System.out.println("Print Data of Singly Linked List Using head");
     System.out.print("===>"+head.data);
     System.out.print("===>"+head.next.data);
     System.out.print("===>"+head.next.next.data);

     System.out.println("Print Data of Singly Linked List Using Method");
     head.display(head);
     head=head.addNodeAtStart(head, 5);
     System.out.println("\nPrint Data after New Node at starting in singly linked List");
     head.display(head);




  }
}
```

Q2. Write a Java Program to insert new Node at end of the Singly Linked List?

Algo

Step1: Create a new Node

Node newNode=new Node(data);

Step2: Traversing to the last node

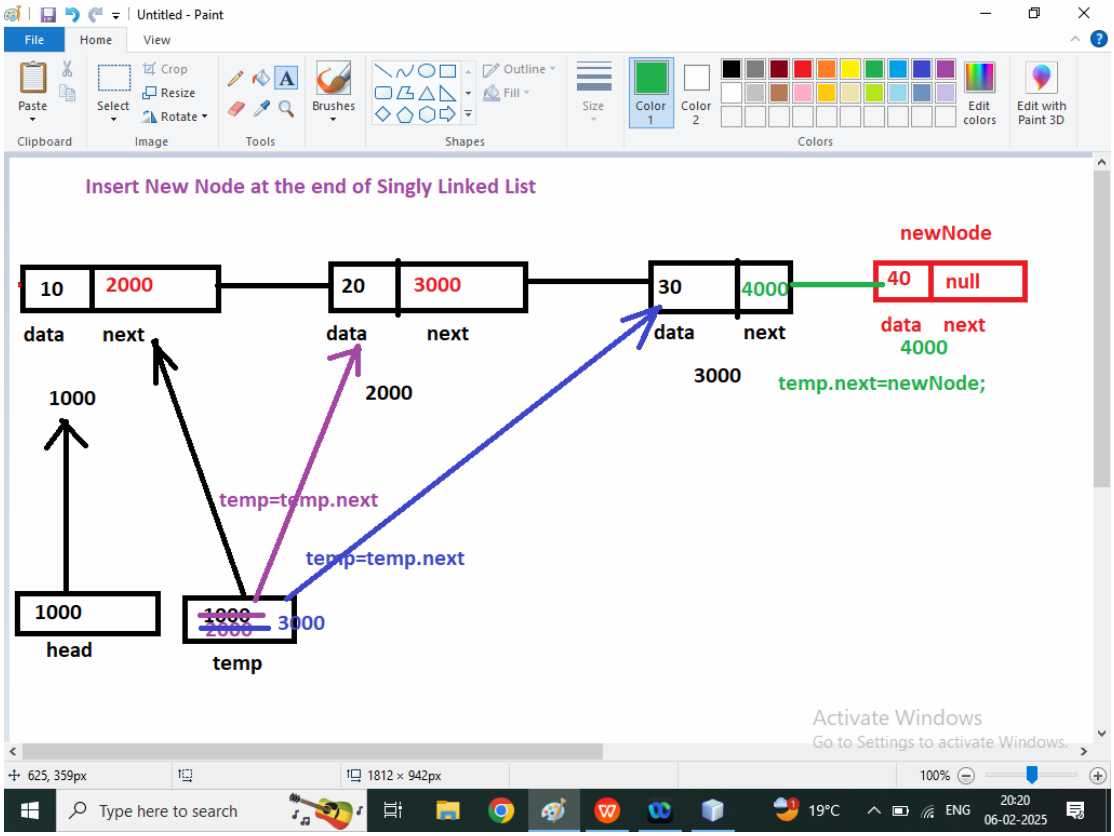
Node temp=head;

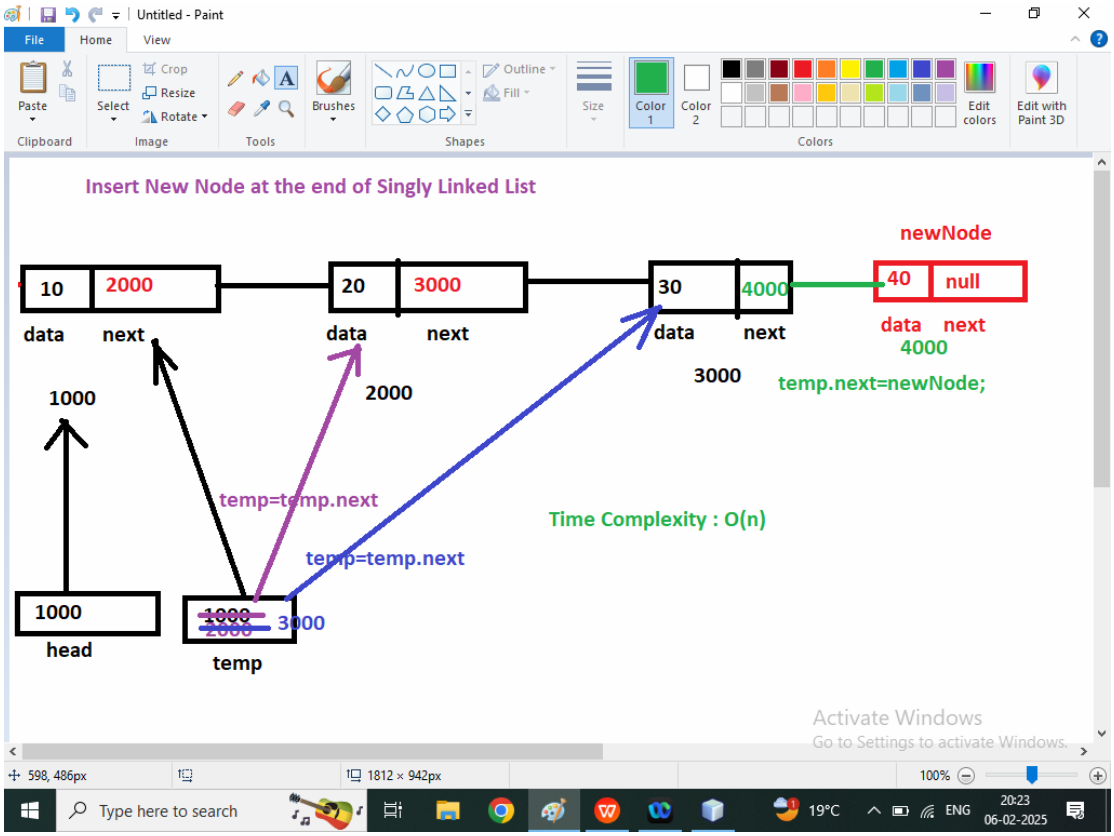
While(temp.next!=null){

Temp=temp.next;

}

Step3: Setting the last node next pointer to the new node
temp.next=newNode;






```
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 */
package dsafeb2025;

/**
 *
 * @author Admin
 */
public class Node {

   int data;
   Node next;

   public Node(int data) {
      this.data = data;
      next = null;
      System.out.println("Node created Success");
   }
public void display(Node head){
   Node temp=head;
   while(temp!=null){
      System.out.print("---->"+temp.data);//10--->20--->30--->40
      temp=temp.next;
   }
}
```

```
public Node addNodeAtStart(Node head,int data){
  //step1: Create a new Node
  Node newNode=new Node(data);
  //step2: Make Point NewNode to Current Node
  newNode.next=head;
  //step3: Update head
  head=newNode;
  //step4: return new head

    return head;

}
public void addNewNodeAtEnd(Node head,int data){
    //step1:Create new Node
    Node newNode=new Node(data);
    //step2: Traverse the list
    Node temp=head;
    while(temp.next!=null){
       temp=temp.next;
    }
    //step3: Setting the last node next pointer to the new node
    temp.next=newNode;


}
    public static void main(String[] args) {
       Node first = new Node(10);
       Node second = new Node(20);
       Node third = new Node(30);

       //Head point the first node of singly Linked List
       Node head=first;
       first.next=second;
       second.next=third;

       System.out.println("Print Data of Singly Linked List");
       System.out.println("===>"+first.data+"===>"+second.data+"===>"+third.data);
       System.out.println("Print Data of Singly Linked List Using head");
       System.out.print("===>"+head.data);
       System.out.print("===>"+head.next.data);
       System.out.print("===>"+head.next.next.data);

       System.out.println("Print Data of Singly Linked List Using Method");
       head.display(head);
      // head=head.addNodeAtStart(head, 5);
       System.out.println("\nPrint Data after New Node at starting in singly linked List");
       head.display(head);
       System.out.println("print Data After Add new Node at end of singly linked List");
       head.addNewNodeAtEnd(head, 40);
       head.display(head);


    }
}
```

Homework:

Write a java program to print Middle Element of the Singly Linked List?