1BM19CS167
SWAROOP. S. JADHAV

```
void createDll (struct Node ** head_ref, int new_value)
{
    struct Node *temp= (struct Node*) malloc(sizeof (struct Node));
     temp->data = new_value;
     temp->prev = NULL;
     temp->next = NULL;
     if (*head_ref == NULL)
     {
        (*head_ref)= temp;
     }
     else
     {
        (*head_ref)->prev = temp;
         temp->next = (*head_ref);
         (*head_ref) = temp;
     }
}

void display (struct Node * node)
{
    struct Node* temp;
    printf ("Linked List contains: \n");
     while (node != NULL)
     {
        printf ("%d", node->data);
         temp = node;
        node = node->next;
     }
    printf ("\n");
}
```

```
void addleft (int new_value, int key)
{
  struct Node * temp = head;
    while(temp != NULL)
    {
        if (temp != NULL)
        {
            if (temp->data == key)
            {
                break;
            }
            temp = temp->next;
        }
    if (temp == NULL)
    {
        printf("\n No Match");
        return;
    }
    if (temp == head)
    {
      createlist (&head, new_value);
        return;
    }
  struct Node * ptr = (struct Node *) malloc (sized (struct Node));
    ptr->data = new_value;
    ptr->prev = temp->prev;
    ptr->next = temp;
    (temp->prev->next = ptr;
     temp->prev = ptr;
}
```

```
void delete(int key)
{
  if (head == NULL)
  {
     printf("List is Empty");
      return;
  }
struct Node *temp = head;
 while (temp != NULL)
{
    if (temp->data == key)
    {
         break;
    }
    temp = temp->next;
 }
if (temp == head)
{
    if (head->next == NULL)
    {
        free (head);
        head = NULL;
        return;
    }
    head = head->next;
    free(head->prev);
     head->prev = NULL;
     return;
 }
```

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```
if (temp == NULL)
{
  printf("No Match");
  return;
}
if (temp->next == NULL)
{
   temp->prev->next = NULL;
    free(temp);
    return;
}
temp->next->prev = temp->prev;
 temp->prev->next = temp->next;
   free(temp);
}
```