THAKUR POLYTCHNIC DEPARTMENT OF COMPUTER ENGINEERING

SYCO- B31

GROUP 29

SUBJECT - creating a linked list and insertion

141. HARSSHAMM JEETENDRA

142. MANE ANIKET VIJAY

143. PATKAR ANKIT DASHRATH

144.SHAIKH ASMA SHAHBAZ

145.VASNIK ABHISHEK PRAMOD

REPORT

Project code :

Insertion in empty list :

```
struct Node *addToEmpty(struct Node *last, int data)
{
	// This function is only for empty list
	if (last != NULL)
	return last;

	// Creating a node dynamically.
	struct Node *temp =
		(struct Node*)malloc(sizeof(struct Node));

	// Assigning the data.
	temp -> data = data;
	last = temp;
	// Note : list was empty. We link single node
	// to itself.
	temp -> next = last;

	return last;
}
```

Insertion in beginning :

struct Node *addBegin(struct Node *last, int data)

{

```
if (last == NULL)
        return addToEmpty(last, data);

// Creating a node dynamically.
struct Node *temp
                = (struct Node *)malloc(sizeof(struct Node));

// Assigning the data.
temp -> data = data;

// Adjusting the links.
temp -> next = last -> next;
last -> next = temp;

return last;
}
```

Insertion at end :

```
struct Node *addEnd(struct Node *last, int data)
{
if (last == NULL)
```

```
        return addToEmpty(last, data);


// Creating a node dynamically.
struct Node *temp =
                (struct Node *)malloc(sizeof(struct Node));


// Assigning the data.
temp -> data = data;


// Adjusting the links.
temp -> next = last -> next;
last -> next = temp;
last = temp;


return last;
}
```

Insertion in between :

```
struct Node *addAfter(struct Node *last, int data, int item)
{
        if (last == NULL)
        return NULL;
```

```
struct Node *temp, *p;
p = last -> next;

// Searching the item.
do
{
        if (p ->data == item)
        {
                // Creating a node dynamically.
                temp = (struct Node *)malloc(sizeof(struct Node));

                // Assigning the data.
                temp -> data = data;

                // Adjusting the links.
                temp -> next = p -> next;

                // Adding newly allocated node after p.
                p -> next = temp;
```

```
                // Checking for the last node.
                if (p == last)
                        last = temp;

                return last;
        }
        p = p -> next;
    } while (p != last -> next);

    cout << item << " not present in the list." << endl;
    return last;
}
```

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Place :

Date :

Signature of teacher :

Smita Dandge