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**Subject: Data Structures**

## **Practical – 8**

**Aim:** Program to create linked list of cell phone with three attributes as data and print it.

**Program:**

```
#include <stdio.h>
#include <stdlib.h>

struct node
{
    char *company;
    float screenSize;
    int price;
    struct node *next;
};

struct node *AddNode(struct node *head, char *cpName, float size, int price)
{
    struct node *temp;
    temp = malloc(sizeof(struct node));
    temp->company = cpName;
    temp->screenSize = size;
    temp->price = price;
    if (head == NULL)
    {
        head = temp;
    }
    else
    {
        struct node *index = head;
        while (index->next != NULL)
        {
            index = index->next;
        }
        index->next = temp;
        temp->next = NULL;
    }
    return head;
}
```

```
}

void printList(struct node *temp)
{
    printf("Printing Linked List\n");
    printf("-----\n");

    while (temp != NULL)
    {
        printf("Company : %s\n", temp->company);
        printf("Screen Size : %.1f inch\n", temp->screenSize);
        printf("Price : Rs. %d\n\n", temp->price);
        temp = temp->next;
    }
}

int main()
{
    struct node *head = NULL;
    head = AddNode(head, "Xiaomi", 5.6, 9999);
    head = AddNode(head, "Apple", 6.1, 99999);
    head = AddNode(head, "Samsung", 6.7, 49999);
    printList(head);
}
```

### Output:

```
Printing Linked List
-----
Company : Xiaomi
Screen Size : 5.6 inch
Price : Rs. 9999

Company : Apple
Screen Size : 6.1 inch
Price : Rs. 99999

Company : Samsung
Screen Size : 6.7 inch
Price : Rs. 49999
```

## Screenshot:

The screenshot displays the Visual Studio Code editor with a C program named `practice.c` open. The program defines a `struct node` with fields `company`, `screenSize`, `price`, and `next`. It includes a function `AddNode` that inserts a new node at the head of the list. The `main` function calls `AddNode` three times with data for Xiaomi, Apple, and Samsung. The terminal output shows the execution of the program, displaying the linked list details for each company.

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 struct node
5 {
6     char *company;
7     float screenSize;
8     int price;
9     struct node *next;
10 };
11
12 struct node *AddNode(struct node *head, char *cpName, float size, int price)
13 {
14     struct node *temp;
15     temp = malloc(sizeof(struct node));
16     temp->company = cpName;
17     temp->screenSize = size;
18     temp->price = price;
19     if (head == NULL)
20     {
21         head = temp;
22     }
23     else
24     {
25         struct node *index = head;
26         while (index->next != NULL)
27         {
28             index = index->next;
29         }
30         index->next = temp;
```

Terminal Output:

```
PS C:\Users\Admin\Desktop\Notes\Data Structure Lab> cd "c:\Users\Admin\Desktop\Notes\Data Structure Lab\" ; if ($?) { gcc Practical8.c -o Practical8 } ; if ($?) { .\Practical8 }
Printing Linked List
-----
Company : Xiaomi
Screen Size : 5.6 inch
Price : Rs. 9999

Company : Apple
Screen Size : 6.1 inch
Price : Rs. 99999

Company : Samsung
Screen Size : 6.7 inch
Price : Rs. 49999

PS C:\Users\Admin\Desktop\Notes\Data Structure Lab>
```

**Conclusion:** I have successfully completed practical 8.