Assignment- 3

Circular linked list/Multi linked list

Q1. Create a circular integer linked list, then write a function to search an element from the list.

Q2. Create a circular singly linked list of N nodes, then modify every node of list such that each node stores the sum of all nodes except that node.

Example:

Input: 4 ↔ 5 ↔ 6 ↔7 ↔ 8
Output: 26 ↔ 25 ↔ 24 ↔ 23 ↔ 22

Input: 1 ↔ 2
Output:2 ↔ 1

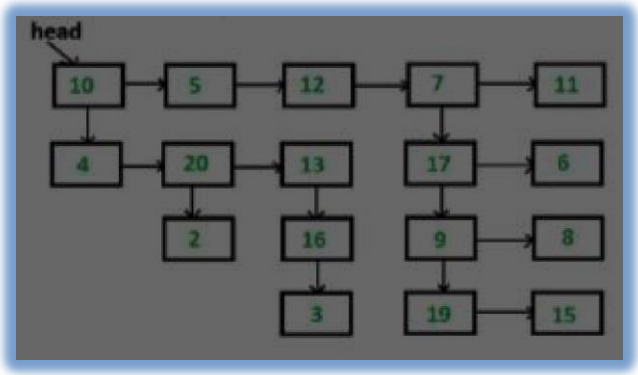
Q3. Given a circular singly linked list containing N nodes, the task is to remove all the nodes from the list which contains elements whose digit sum is even.

Example:

Input: CLL = 9 -> 11 -> 34 -> 6 -> 13 -> 21
Output: 9 -> 34 -> 21

Q4. Given a linked list where in addition to the next pointer, each node has a child pointer, which may or may not point to a separate list. These child lists may have one or more children of their own, and so on, to produce a multilevel data structure, as shown in below figure. You are given the head of the first level of the list. Flatten the list so that all the nodes appear in a single-level linked list. Write the program to flatten the list in way that all nodes at first level should come first, then nodes of second level, and so on. Each node is a C struct with the following definition.

```
struct list
{
int data;
struct list *next;
struct list *child;
};
```



The above list should be converted to

10→5→12→7→11→4→20→13→17→6→2→16→9→8→3→19→15