# Advanced Data Structures And Algorithms-Tutorial 2

## Indian Institute of Information Technology, Allahabad (Prayagraj)

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## 1. Problem Statements

P1 - Explain the scenarios where you can use linked lists and arrays?

P2- Write a program to detect a loop in the linked list without using Auxiliary Space. And also explain your algorithm?

P3-Write a program to Implement a stack using a singly linked list?

P4:-Justify the Time Complexity of give functions with proper reasoning;

a)-
```
int fun(int n){
int i, j;
for(i=1; i<=n; i++){
for (j=1; j<n; j+=i){
printf("1");
}
}
}
```

b):-
```
void fun(int n)
{
int i = 1, sum =1;
while (sum <= n)
{
i++;
sum += i;
printf("1");
} }
```

P5:- How do you implement a stack using queues?

P6- Write a program to reverse a linklist using both iterative and recursive methods .