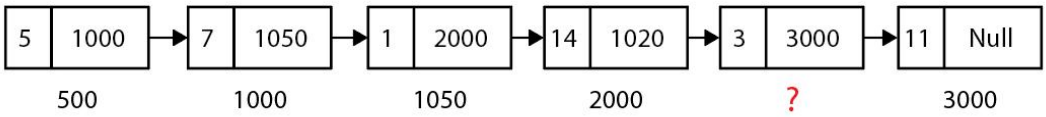
Module-5



a. Why do you think linked-list requires more memory than an array when storing the same number of elements?

Ans:

Linked lists need extra memory because each node stores:

i. Data (the actual value)

ii. Pointer/reference to the next node (and sometimes the previous one, in doubly linked lists)

On the other hand array need only one memory for each array:

i. Data (the actual value)

b. Write down Three Limitations of the array which can be solved by the use of Linked List

Ans:

i. Requires contiguous memory allocation, which can fail if large blocks are unavailable.

ii. Insertion at arbitrary positions takes O(n) time due to element shifting.

iii. Deletion from middle or beginning takes O(n) time and involves shifting elements.

c. What is the value of Head?

Ans:

```
Head-> value == 5;
```

d. What is the value of ? marked address location?

Ans:

```
&? == 1020;
```

e. What will be the value of Head->Next->Next->Value?

Ans:

```
Head->Next->Next->Value == 1;
```

f. What will be the value of **Sum** following pseudocode snippets?

```
Sum = 0
Temp = Head
While ( Temp -> Next!= 1020){
 Sum += Temp-> value
 Temp = Temp -> Next
}
Sum -= Temp -> value;

Sum == 24;
```