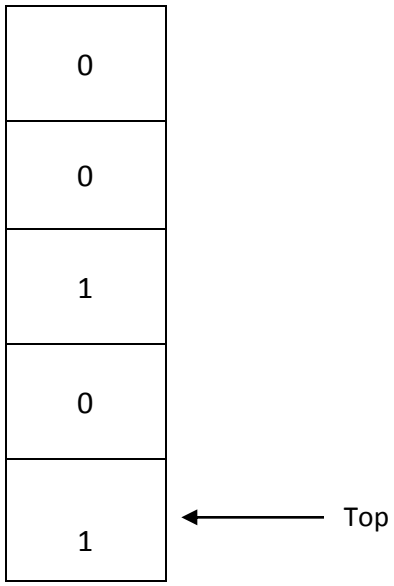
- Question 1
    i) By using this code we can get binary value of given number.
    ii) Let's take n as 20.

The while loop continuous till n > 0. In the while loop push n % 2 to the stack, then n is assign as n/2. The steps are showing bellow,

Step1 – st.push (20 % 2) =
n = 20 / 2
n = 10
Step2 – st.push (10 % 2) =
n = 10 / 2
n = 5
Step3 – st.push (5 % 2) =
n = 5 / 2
n = 2
Step4 – st.push (2 % 2) =
n = 2 / 2
n = 1
Step5 – st.push (1 % 2) =
n = 1 / 2
n = 0



While loop condition become false

Then print the stack values using pop method till stack become empty
The outcome values are 10100. This is equals to binary value of 20.

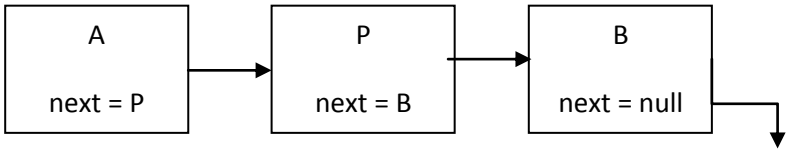
- Question 2
    i) Data structure – Linked List
    ii) Reason – There enrolling students count is undefined, therefore enroll limit should be unlimited. And also using Linked list can store students some data.
    iii) The method should include in to LinkedList class

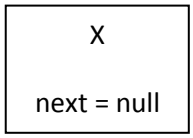
```
public int getTotalStudents(){

        Link temp = first;
        int count = 0;

        while( temp != null ){
                count ++;
                temp = temp.next;
        }
        return count;
}
```

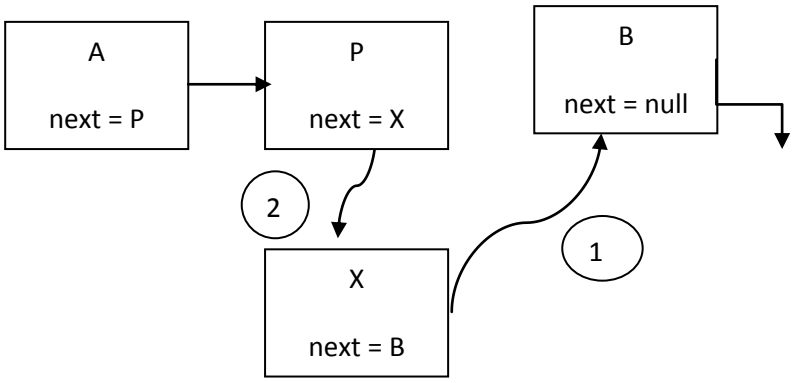
- Question 3
  i) Let's take the Linked list has three links as P,A,B





X.next = P.next;

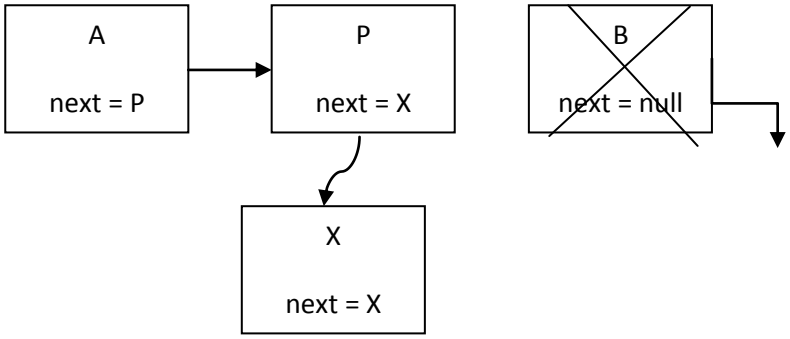
P.next = X;



As the diagram the new X link add between the P and B.

Answer – X link become as the next link of P link

ii) No, Reason is the P link next become X, because of that the P.next link is dismissed. And also rest links after the P are lost.



- Question 5
  Data structure – Circular Queue and Stack

  Let's take there are 5 groups