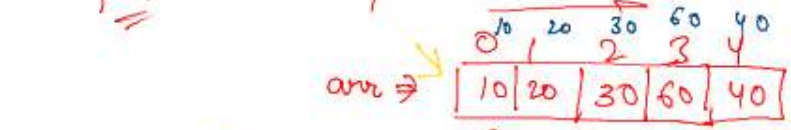
Ques The painters problem



K = 3

min # of time to get this job done

sum of arr = hi

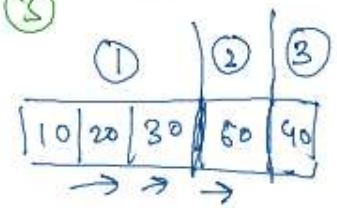
lo = 60 (max of array)

60 = [60 | 60 | 40] → 10 20 30 | 60 | 40 → 30 | 90 | 40

90 = [10 20 | 30 60 | 40] → 30 | 30 | 100

100 = [10 20 | 30 | 60 40] → 50 | 100

100 = [10 | 20 30 | 60 40] → 10 | 50 | 100



72

85

ans = 140

60 lo

160 hi

sum = 60+40 K

sum = arr[0]

for(int i=0; i<arr.leng; i++){

painter = 1;

if(sum + arr[i] < limit){

sum += arr[i];

}else{ sum = arr[i];

painter++;

}

mid

72

[10, 10, 10, 10, 10]

1 2 3 4 5

K = 5

K = 1

50 hi =

10 = 10]

fun

return = painter <= K

```java
public static int minPainterNeeded(int[] arr, int k ){
    int lo =0;
    int hi= 0;
    for(int i=0;i<arr.length;i++){
        lo = Math.max(lo,arr[i]);
        hi +=arr[i];
    }
    int ans =0;
    while(lo<=hi){
        int mid = lo + (hi-lo)/2;
        if(ifpossibletoPaint(arr,k,mid)){
            ans = mid;
            hi = mid-1;
        }else{
            lo =mid+1;
        }
    }
    return ans;
}

public static boolean ifpossibletoPaint(int[] arr, int k,int limit){
    int sum =0;
    int painter=1;

    for(int val: arr){
        if(val+sum<=limit){
            sum +=val;
        }else{
            sum = val;
            painter++;
        }
    }
    return painter<=k;
}
```

[40, 50, 30, 10]

lo = 50

hi = 130 → 89 → 69

mid = 70

k = 3

ans = 0 → 90 → 70

true

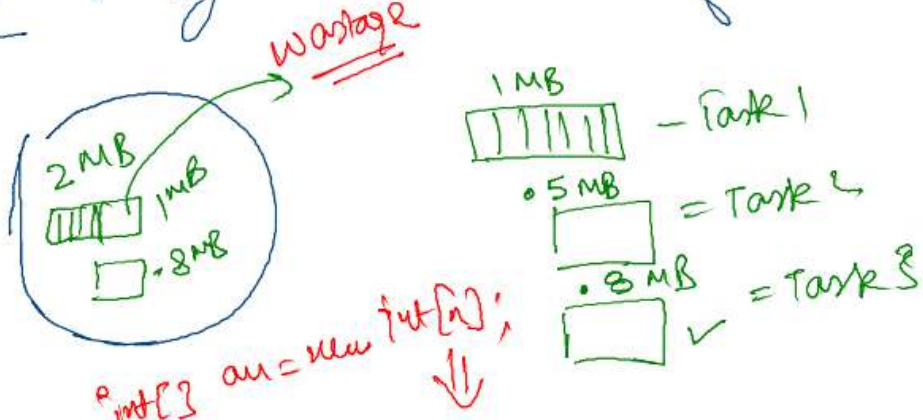
3 70

sum = 80 → 40

painter = 1 → 2 → 3

3 <= 3

ArrayList ⇒ Dynamic behaviour of the array



ArrayList<Integer> arr = new ArrayList<>();

[4 MB] [.3] MB

```java
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();
    ArrayList<Integer> arr= new ArrayList<>();
    for(int i =0;i<n;i++){
        int val = scn.nextInt();
        switch(val){
            case 1:
                System.out.println(arr.size());
                break;
            case 2:
                if(arr.size()>0){
                    System.out.println(arr.get(arr.size()-1));
                    arr.remove(arr.size()-1);
                }else{
                    System.out.println("invalid-move");
                }
                break;
            case 3:
                int x = scn.nextInt();
                System.out.println(x);
                arr.add(x);
                break;
            case 4:
                if(arr.size()>0){
                    System.out.println(arr.get(0));
                    arr.remove(0);
                }else{
                    System.out.println("invalid-move");
                }
                break;
        case 5:
            int y = scn.nextInt();
            System.out.println(y);
            arr.add(0,y);
            break;
        case 6:
            if(arr.size()>0){
                for(int val1: arr){
                    System.out.print(val1+" ");
                }
                System.out.println();
            }else{
               System.out.println("invalid-move");
            }
            break;
```

Q. Print arraylist in reverse order using normal for loop and using for each loop;

```java
public class Solution {

    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        int n =scn.nextInt();

        ArrayList<Integer> arr = new ArrayList<>();

        for(int i=0;i<n;i++){
            arr.add(scn.nextInt());
        }

        for(int i=arr.size()-1;i>=0;i--){
            System.out.print(arr.get(i)+" ");
        }
        System.out.println();

        Collections.reverse(arr);

        for(int val : arr){// for each loop
            System.out.print(val+" ");
        }
        /* Enter your code here. Read input from STDIN. Print output to STDOUT
    }
}
```