Task 3: Combined Results

For both Task 1 and Task 3, we gave more importance to the pages at shallower depth than deeper ones and within each individual web page hyperlinks appearing earlier on in the webpage have higher importance than the later ones and we crawled in the same fashion.

So in the 1000 outputted URLs for each task top URLs are more important than the later ones. My merging function will use the same idea to merge both the list.

I will take the first URL from list1 and put it into merged list and then will take the first URL from list2 and put it into merged list and will follow the same process until reaches to 1000 URLs. If both list has all unique URLs(all 2000 URL of list1 and list2) then my merged list will have top 500 URLs from both the lists but they will come one after another.

Function code is as follows:

```java
Set<String> merge(ArrayList<String> list1, ArrayList<String> list2)
    {
        Set<String> mergedSet = new LinkedHashSet<String>();

        int index1 = 0;
        int index2 = 0;

        while(mergedSet.size() < 1000 && (index1 < list1.size() || index2 <
        list2.size()))
        {
            if(index1 < list1.size())
            {
                if(!mergedSet.contains(list1.get(index1)))
                {
                    mergedSet.add(list1.get(index1));
                }
                index1++;
            }

            if(index2 < list2.size())
            {
                if(!mergedSet.contains(list2.get(index2)))
                {
                    mergedSet.add(list2.get(index2));
                }
                index2++;
            }
        }
        return mergedSet;
    }
```