Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author:	Ritish Bansal
Assignment title:	HW # 2
Submission title:	Assignment 2
File name:	190101076_HW2.pdf
File size:	78.29K
Page count:	1
Word count:	332
Character count:	1,200
Submission date:	02-Mar-2021 01:22PM (UTC+0530)
Submission ID:	1522128596

Assignment 2

Ritish Bansal
190101076

March 2, 2021

1

Language L consists of strings of length 2n where last n characters are all ones where n>=0.
Let there are 2 strings a,b where $|a| = n$ and $|b| = m$ where n≠m.
We will show that relation R_L has infinite index. Taking n<m and for all pairs of n,m appending 01^{n+1} at end of both strings.
we will show that $a01^{n+1} \in$ L and $b01^{n+1} \notin$ L.
$a01^{n+1} \in$ L as taking w as $a0$ and it has length n+1 and string has n+1 1's at end. So it belongs to L.
$b01^{n+1} \notin$ L as total length is m+n+2. So it must have $(m + n + 2)/2$ 1's at end but it have only n+1 1's which are less than required which can be shown as follows :-
n<m and add n+2 both sides gives
2n+2 < m+n+2 and dividing by 2 gives desired result.
So a and b must be in different classes for all n and m.
Hence number of classes of R_L are infinite and by Myhill-Nerode theorem L is non-regular.

2

Language L consists of strings of length 2n where last n characters are compliment of first n characters where $n >= 0$.
Let there are two strings a and b where a=0^n and b=0^m where n≠m.
We will show that relation R_L has infinite index. Taking n<m and for all pairs of n,m appending 1^n at end of both strings.
we will show that $0^n1^n \in$ L and $0^m1^n \notin$ L.
As $0^n1^n \in$ L is trivial as taking w as 0^n gives required string. Hence $0^n1^n \in$ L.
Also $0^m1^n \notin$ L is trivial as n≠m So, it can never be in L.
So a and b are in different classes for all n and m.
Hence number of classes of R_L are infinite and by Myhill-Nerode theorem L is non-regular.