Bonus Homework 13.

a) Implemented in "Horsechess.cpp".

Problem 13.2

a) The Robin karp algorithm works by matching the hash value of pattern with the text. Lets consider an example.

Text = "Hello World"
Patern = "Wor"

Initially the algorithm finds out the length of the string as this will make it possible to know go through the characters one by one.

First we find out the hash value of just the first 3 characters of Text ~~or~~ Text and with that of pattern. This is the work of the first loop.

Now enter the second loop. We only go through the characters if the hash values match. Very important thing to keep in mind even though

"noW" and "wor" might produce same Hash value (depends on implementation). the ~~word~~ ~~characters~~ search may come true this is why we still individually go through the word.

Suppose Hash value of Wor was 281. The ~~program~~ ~~will~~ loop will calculate the hash value of the ~~fi~~ 3 characters in the text pattern and compare it with 281. Now when hash value is same it will only then compare characters and if it is a match the answer is posted greatly reducing the comparisms.

Therefore the ~~worst~~ average and best case have complexity O(n+m) where as the worst case has complexity O(nm) such as ~~e~~ searching "00" in "0000000".

b) Implemented in "Rabin.cpp".