Question1: Problem has been regarded as finding a substring that has three characters surrounded with spaces. Apart from the occurrence at the start of the string, we are looking at keyword with spaces on both sides. Idea is to compare the four characters of string to be matched (“the “) as a whole. If a match is found and previous character was a space character then the source string pointer is incremented to skip the 3 characters “the” otherwise the present character is copied into result string. The source string pointer is incremented to next character and match is considered again until null character is encountered in source string.

A flag is maintained to keep track if the present character is space. This helps when we encounter a match in next iteration.

Flowchart

Initialize flag register to 1; assume we start with a space character in the beginning.

Initialize registers with string addresses.

Load word sized data from search string and key word string.

No

Yes

Key string found ?

No

Yes

End Program

End of string ?

Increment string pointer by 1 character

Increment string pointer by 3 character

Set flag if character is whitespace.

Copy single character to result string.

Previous character was a whitespace

Question 2:

Flowchart for the main.

1. Load value of variable x.
2. Call function to compute polynomial.
3. Double the value returned by the function.

Flowchart for the function.

1. Save any registers that might be used in the function
2. Load constants a,b and c.
3. Compute x^2
4. Multiply x squared with a.
5. Add constant c to the above value.
6. Compute b times x and add above value to the result.
7. Compare the final result with threshold value.
8. If result > threshold, then return threshold else return result.