LAB EXERCISE – 5

(1) //Test whether a word belongs to grammar

// S -> 0A

// A -> 1A | 2B

// B -> 0B | 1

```
#include <stdio.h>

#include <string.h>

#include <stdlib.h>


#define N 20

char M[N] = "";

int i, n, accept;


void B()

{

   char c = M[i];

   if (c == '0')

   {

      i++;

      B();

   }

   else if (c == '1')
```

```c
    {
        if (i == n-1)
            accept = 1;
        else
            accept = 0;
    }
    else
        accept = 0;
}


void A()
{
    char c = M[i];
    if (c == '1')
    {
        i++;
        A();
    }
    else if (c == '2')
    {
        i++;
        B();
    }
    else
```

```c
    {
        accept = 0;
    }
}


void S()
{
    char c = M[i];
    if (c == '0')
    {
        i++;
        A();
    }
    else
    {
        accept = 0;
    }
}


int main()
{
    printf("This program tests whether a word belongs to the defined grammar as follows: \n\tS -> 0A \n\tA -> 1A | 2B \n\tB -> 0B | 1\n\n");
    printf("Enter a word to test: \n");
    scanf("%s", M);
```

```c
    n = strlen(M);


    i = 0;
    S();
    if (accept == 1)
        printf("This word belongs to the language.\n");
    else
        printf("This word does not belong to the language.\n");
}
```