CD Lab 5

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Question 1:

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
int curr = 0;
char str[100];

void S();
void Tprime();
void T();


void invalid()
{
    printf("-----------------ERROR!----------------\n");
    exit(0);
}
void valid()
{
    printf("----------------SUCCESS!---------------\n");
    exit(0);
}

void S(){

        if(str[curr] == 'a')
    {
      curr++;
      return;
    }
    else if(str[curr] == '>'){
        curr++;
        return;
    }
    else if(str[curr] == '('){
        curr++;
        T();
        if(str[curr] == ')'){
                curr++;
                return;
        }
        else{
                invalid();
        }
    }
    else{
```

```c
            invalid();
    }

}

void T()
{

    S();
    Tprime();

}

void Tprime(){

        if(str[curr] == ','){
                curr++;
                S();
                Tprime();
        }

}

int main()
{
    printf("Enter String: ");
    scanf("%s", str);
    S();

    if(str[curr] == '$')
        valid();
    else
// printf("%c\n", str[curr]);
        invalid();
}
```



```
student@prg35:~/Desktop/190905316_CDLab/Week5$ gcc q1.c -o q1
student@prg35:~/Desktop/190905316_CDLab/Week5$ ./q1
Enter String: ((a,>))$
---------------SUCCESS!---------------
```

Question 2:

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
int curr = 0;
char str[100];
// ------------------------------------------------------------------------------------------------

void S();
void U();
void V();
void W();
void invalid();
void valid();
// ------------------------------------------------------------------------------------------------

void S(){
        U();
        V();
        W();
}

void U(){
        if(str[curr] == '('){
                curr++;
                S();
                if(str[curr] == ')'){
                        curr++;
                        return;
                }
                else{
                        invalid();
                }

        }

        else if(str[curr] == 'a'){
                curr++;
                S();
                if(str[curr] == 'b'){
                        curr++;
                        return;
                }
                else{
                        invalid();
                }

        }
        else if(str[curr] == 'd'){
```

```c
                curr++;
                return;
        }
        else
                invalid();
}

void V(){
        if(str[curr] == 'a'){
                curr++;
                V();
        }
}

void W(){
        if(str[curr] =='c'){
                curr++;
                W();
        }
}


void invalid()
{
   printf("-----------------ERROR!----------------\n");
   exit(0);
}
void valid()
{
   printf("----------------SUCCESS!---------------\n");
   exit(0);
}

int main()
{
   printf("Enter String: ");
   scanf("%s", str);
   S();

   if(str[curr] == '$')
       valid();
   else
// printf("%c\n", str[curr]);
       invalid();
}
```

```
student@prg35:~/Desktop/190905316_CDLab/Week5$ gcc q2.c -o q2
student@prg35:~/Desktop/190905316_CDLab/Week5$ ./q2
Enter String: a(daaccc)aaacccccbaacccc$
----------------SUCCESS!---------------
```

Question 3:

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
int curr = 0;
char str[100];
// -------------------------------------------------------------------------------------------------

void S();
void A();
void Aprime();
void B();
void invalid();
void valid();

void invalid()
{
    printf("-----------------ERROR!----------------\n");
    exit(0);
}
void valid()
{
    printf("----------------SUCCESS!---------------\n");
    exit(0);
}

void S(){
        if(str[curr] == 'a'){
                curr++;
                A();
                if(str[curr] == 'c'){
                        curr++;
                        B();
                        if(str[curr] == 'e'){
                                curr++;
                        }
                        else{
                                invalid();
                        }

                }
                else{

                                invalid();
                }
        }

        else{
                invalid();
        }
}
```

```c
void A(){
        if(str[curr] == 'b'){
                curr++;
                Aprime();
        }
        else{
                invalid();
        }
}
void Aprime(){
        if(str[curr] == 'b'){
                curr++;
                Aprime();
        }
}

void B(){
        if(str[curr] == 'd'){
                curr++;
        }
        else{
                invalid();
        }
}
int main()
{
   printf("Enter String: ");
   scanf("%s", str);
   S();

   if(str[curr] == '$')
      valid();
   else
// printf("%c\n", str[curr]);
      invalid();
}
```

Question 4:

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
int curr = 0;
char str[100];
// ---------------------------------------------------------------------------------------------------

void S();
void L();
void Lprime();
void invalid();
void valid();

void invalid()
{
    printf("-----------------ERROR!----------------\n");
    exit(0);
}
void valid()
{
    printf("----------------SUCCESS!--------------\n");
    exit(0);
}
void S(){
        if(str[curr] == '('){
                curr++;
                L();
                if(str[curr] == ')'){
                        curr++;
                }
                else{
                        invalid();
                }
        }
        else if(str[curr] == 'a'){
                curr++;
        }

        else{
                invalid();
        }
}

void L(){
        S();
        Lprime();
}
```

```c
void Lprime(){
    if(str[curr] == ','){
        curr++;
        S();
        Lprime();
    }
}



int main()
{
    printf("Enter String: ");
    scanf("%s", str);
    S();

    if(str[curr] == '$')
        valid();
    else
// printf("%c\n", str[curr]);
        invalid();
}
```

```
student@prg35:~/Desktop/190905316_CDLab/Week5$ gcc q4.c -o q4
student@prg35:~/Desktop/190905316_CDLab/Week5$ ./q4
Enter String: ((a),(a,a))$
---------------SUCCESS!---------------
```