



## Department of Computer Science and Engineering

### Compiler Design Lab (CS 306L)

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### **Week 1: Implementation of Language recognizer**

#### **Week 1 Programs**

1. Implementation of Language recognizer for set of all strings over input alphabet  $\Sigma=\{a,b\}$  containing even number of a's and even number of b's.
2. Implementation of Language recognizer for set of all strings ending with two symbols of same type.

#### **Program 1:**

Implement a language recogniser which accepts set of all strings over the alphabet  $\Sigma=\{a,b\}$  containing an even number of a's and an even number of b's.

#### **C Code**

```
#include<stdio.h>
void main()
{
int state=0,i=0;
char token,input[20];
printf("Enter input string \t :");
scanf("%s",input);
//printf("Given string is : %s");
while((token=input[i++])!='\0')
{
// printf("current token : %c \n",token);
switch(state)
{
case 0: if(token=='a')
```

```
state=1;
else if(token=='b')
state=2;
else
{
printf("Invalid token");
exit(0);
}
break;
case 1: if(token=='a')
state=0;
else if(token=='b')
state=3;
else
{
printf("Invalid token");
exit(0);
}
break;
case 2: if(token=='a')
state=3;
else if(token=='b')
state=0;
else
{
printf("Invalid token");
exit(0);
}
break;
case 3: if(token=='a')
state=2;
else if(token=='b')
state=1;
else
{
printf("Invalid token");
```

```

exit(0);
}
break;
}
// printf("state = %d ",state);
}
if(state==0)
printf("\n\nString accepted\n\n");
else
printf("\n\nString not accepted\n\n");
}

```

## Program 2:

Implementation of Language recognizer for set of all strings ending with two symbols of the same type.

### C Code

```

#include<stdio.h>
void main()
{
int position=0,i=0;
char letter,input[20];
printf("Enter input string \t :");
scanf("%s",input);
while((letter=input[i++])!='\0')
{
switch(position)
{
case 0: if(letter=='a')
position=1;
else if(letter=='b')
position=3;
else
{

```

```
printf("Invalid letter");
exit(0);
}
break;
case 1: if(letter=='a')
position=2;
else if(letter=='b')
position=3;
else
{
printf("Invalid letter");
exit(0);
}
break;
case 2: if(letter=='a')
position=2;
else if(letter=='b')
position=3;
else
{
printf("Invalid letter");
exit(0);
}
break;
case 3: if(letter=='a')
position=1;
else if(letter=='b')
position=4;
else
{
printf("Invalid letter");
exit(0);
}
break;
case 4: if(letter=='a')
position=1;
else if(letter=='b')
position=4;
else
{
printf("Invalid letter");
exit(0);
}
}
```

```
break;
}
}
if(position==2 || position==4)
printf("\n\nString accepted\n\n");
else
printf("\n\nString not accepted\n\n");
}
```