21BDS0340

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Compiler Design Lab

Assignment – VI

**Question 1**

Aim: To check whether a string is in the grammar a^n.b^n

Program:

#include <stdio.h>

#include <string.h>

int main()

{

char input[100];

printf("Enter a string: ");

scanf("%s", input);

int num\_a = 0;

int num\_b = 0;

int i = 0;

while (input[i] == 'a')

{

num\_a++;

i++;

}

while (input[i] == 'b')

{

num\_b++;

i++;

}

if (num\_a > 0 && num\_a == num\_b && input[i] == '\0')

{

printf("String is in the form a^n.b^n\n");

}

else

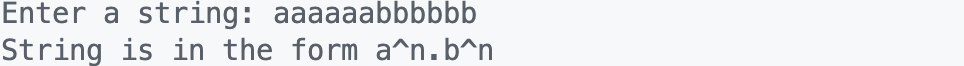
{

printf("String is not in the form a^n.b^n\n");

}

}

Output:



**Question 2**

Aim: To check whether a string is in the grammar a^n.b

Program:

#include <stdio.h>

#include <stdbool.h>

#include <string.h>

bool isGrammarValid(char \*str)

{

int len = strlen(str);

int i = 0;

while (i < len && str[i] == 'a')

{

i++;

}

if (i == len && str[i] == 'b')

{

return true;

}

else

{

return false;

}

}

int main()

{

char input[100];

printf("Enter a string: ");

scanf("%s", input);

if (isGrammarValid(input))

{

printf("String follows the grammar a^n.b\n");

}

else

{

printf("String does not follow the grammar a^n.b\n");

}

}

Output:

