

Practical 3

Title: Write a C program to implement finite automata and string validation.

Hint: The purpose of this code is to implement finite automata and string validation.

Program:

```
#include <stdio.h>
#include <string.h>
int isAccepted(char *input)
{
    int state = 0;
    int length = strlen(input);
    for (int i = 0; i < length; i++)
    {
        char ch = input[i];
        if (state == 0 && ch == 'a')
        {
            state = 1;
        }
        else if (state == 1 && ch == 'b')
        {
            state = 2;
        }
        else if (state == 2 && ch == 'b')
        {
            state = 3;
        }
        else if (state == 3 && ch == 'a')
        {
            state = 4;
        }
        else {
            return 0;
        }
    }
    return (state == 4);
}

int main() {
    char input[100];
    printf("Name: Priyansh Shuka\n");
    printf("Enrollment No: 92200103216\n\n");
    printf("Enter a string: ");
    scanf("%s", input);
    if (isAccepted(input))
        printf("String '%s' is accepted by the finite automaton.\n", input);
    else
        printf("String '%s' is rejected by the finite automaton.\n", input);

    return 0;
}
```

Output:

```
pgsql
```

```
Name: Samarth Chavda
```

```
Enrollment No: 92200103165
```

```
Enter a string: abba
```

```
String 'abba' is accepted by the finite automaton.
```

```
Name: Samarth Chavda
```

```
Enrollment No: 92200103165
```

```
Enter a string: abbb
```

```
String 'abbb' is rejected by the finite automaton.
```