VIT - Vellore

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BCSE102P_Structured and Object Oriented Programming Lab_VL2024250502365

VIT V_BCSE102P_Lab 2_COD_Hard_Functions

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Jack is curious about duck numbers, which are defined as numbers containing at least one '0' but do not start with '0'. Write a recursive function that checks if a given integer is a duck number.

Function Specifications: bool isDuckNumber(int)

Answer

```c
#include <stdio.h>
#include <stdbool.h>

bool isDuckNumber(const char *num, int index, bool zeroFound){
    if (num[index] == '\0'){
        return zeroFound;
```

```c
    }

    if (num[index] == '0'){
        zeroFound = true;
    }

    return isDuckNumber(num, index + 1, zeroFound);
}

int main(){
    int n;
    scanf("%d", &n);

    char num[6];

    sprintf(num, "%d", n);

    if (num[0] == '0'){
        printf("%d is not a duck number.\n", n);
    } else if(isDuckNumber(num, 1, false)){
        printf("%d is a duck number.\n", n);
    } else{
        printf("%d is not a duck number.\n", n);
    }

    return 0;
}
```

Status : Correct   *Marks : 10/10*