8/03/2024

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C.P Set 2

End Sem Exam

Q-1

Ans A recursive function is tail recursive when recursive call is the last thing executed by the function.

Example :-

```
#include <stdio.h>
  void print(int n){
        if(n<0){
            return;
        }
        printf("%d ", n);
        print(n-1);
  int main() {
    print(10);
  Return 0;
  }
```

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Difference between normal and tail recursion :-

→ Recursion call it self directly but tail recursion means that this is very last thing happens in the method before it returns.

(b) Output : 7 1 G

(C) No the code is wrong, due to initialization and segmentation fault.
i is not ~~init~~ declared but used in that code.

Corrected code :-

```
long fact (int n)
{
    long k=n;
    if (n>1) {
        k* = fact (n-1);
    }
    return k;
}
```

Q-2

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```
#include <stdio.h>
# include <stdlib.h>
char vowelfilter(char *p) {
        if(*p== 'a'||*p=='e'||*p=='i'||*p=='o'||*p=='u')
        {
            return *p;
        }
        p++;

}
int main()
{
    char *p;
    p= (char*) malloc(5* sizeof(char));
    *p = "IIIT";
   for(int i=0, i<4; i++)
    {
        printf("%c", vowelfilter(*p));
    }
return 0;
}
```

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Q-3

(a) Total number of lines are 3

(b) In the program for question (a), if we want to open file for both reading and writing, the mode we need to use is r+

(c) if (fp == NULL)

(d) fwrite(stud1, sizeof(stud1), 1, fptr);
fread(stud2, sizeof(stud2), 1, fptr);