CSE 2005

OPERATING SYSTEMS

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L7+L8 | PLBG17

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by

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Questions

Hi SHARADINDU ADHIKARI, when you submit this form, the owner will be able to see your name and email address.

1. Consider an encoding technique which represents the character and the number of times the character appeared immediately in the word. For example the word "BookSeller!!!" which can be represented as B1o2k1S1e1l2e1r1!3.
   You need to write a thread program which does the following things.
   (i) Thread1 that creates a file with the number of encoded words (7)
   File: Input_file.txt
   B1o2k1S1e1l2e1r1!3
   S1t1o1r1e1k1e2p1e1r1

   (ii) Thread2 which reads the encoded string from the Input file and print the expanded form which represents the original word as well as store it in the file. (13)
   File : Output_file.txt
   BookSeller
   Storekeeper (Non-anonymous question ⓘ)

Solution_1

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include<pthread.h>

void* encoded()
{
    char a[100] ,b[100];
    FILE *fptr;
    fptr = fopen("input.txt","w");

    printf("enter 1st encoded word ::");
    scanf("%s",a);
    fprintf(fptr,"%s\n",a);

    printf("enter 2nd encoded  ::");
    scanf("%s",b);
    fprintf(fptr,"%s",b);

    fclose(fptr);
    return NULL;


}


int main()
{
    pthread_t t1;
    pthread_create(&t1,NULL,encoded(),NULL);
    return 0;
}
```

```
#include<bits/stdc++.h>
using namespace std;

// Returns decoded string for 'str'
string decode(string str)
{
    stack<int> integerstack;
    stack<char> stringstack;
    string temp = "", result = "";

    // Traversing the string
    for (int i = 0; i < str.length(); i++)
    {
        int count = 0;

        // If number, convert it into number
        // and push it into integerstack.
        if (str[i] >= '0' && str[i] <='9')
        {
            while (str[i] >= '0' && str[i] <= '9')
            {
                count = count * 10 + str[i] - '0';
                i++;
            }

            i--;
            integerstack.push(count);
        }

            // If closing bracket ']', pop elemment until
            // '[' opening bracket is not found in the
            // character stack.
        else if (str[i] == ']')
        {
            temp = "";
            count = 0;

            if (! integerstack.empty())
            {
                count = integerstack.top();
                integerstack.pop();
            }

            while (! stringstack.empty() && stringstack.top()!='[' )
            {
                temp = stringstack.top() + temp;
                stringstack.pop();
            }

            if (! stringstack.empty() && stringstack.top() == '[')
                stringstack.pop();

            // Repeating the popped string 'temo' count
            // number of times.
            for (int j = 0; j < count; j++)
                result = result + temp;

            // Push it in the character stack.
            for (int j = 0; j < result.length(); j++)
                stringstack.push(result[j]);
```

```
            result = "";
        }

            // If '[' opening bracket, push it into character stack.
        else if (str[i] == '[')
        {
            if (str[i-1] >= '0' && str[i-1] <= '9')
                stringstack.push(str[i]);

            else
            {
                stringstack.push(str[i]);
                integerstack.push(1);
            }
        }

        else
            stringstack.push(str[i]);
    }

    // Pop all the elmenet, make a string and return.
    while (! stringstack.empty())
    {
        result = stringstack.top() + result;
        stringstack.pop();
    }

    return result;
}

// Driven Program
int main()
{
    string str = "B1o2k1S1e1l2e1r1!3";
    cout << decode(str) << endl;
    return 0;
}
```

Result

CPU Time: 0.00 sec(s), Memory: 3364 kilobyte(s) compiled and executed in 3.315 sec(s)

```
BokSeler!
```