College of Computer Studies
Laboratory Activity Form

Course Number	CSIT221
Course Title	Data Structures and Algorithms 1
Topics Covered:	Stack, Linked-list
Objectives:	Implement a Stack using a Linked-list

Description

A Stack is a last-in-first-out (LIFO data Structure)
// data structure LIFO

typedef char stackItem;

Stack newStack();
void freeStack(Stack *s);
void push(Stack s,stackItem item); // insert at the top - push
void pop(Stack s); // deleting the top element - pop
stackItem stackTop(Stack s); // returns the top item
bool isEmpty(Stack s);
void display(Stack s);

1. Implement a Stack using a linked-list.
2. Use the stack in making a program that will check whether a string contains balance symbols [], {}, (). The algorithm works like this – an open symbol -- (, { , [-- is pushed on the stack. When a closed symbol --], },) – is encountered, check the top of the stack to see if the matching open symbol is there, if yes, pop the stack, otherwise, mismatch. At the end of the string, the stack should be empty.

Remarks

Use the Project Name – StackLink which includes Stack.h, Stack.c, main.c.