EXPERIMENT 2

Stack Implementation Using C

Experiments:

1) Implement a stack to evaluate the correctness of nested parentheses. You may use following algorithm to implement the stack.

```
valid=true;
s=the empty stack;
while(we have not read the entire string)
{
  read the next symbol(symb) of the string
  if (symb==’(‘ | | symb ==’[‘ | | symb == ‘{‘ )
                              push(s, symb)
  if (symb==’)‘ | | symb ==’]‘ | | symb == ‘}‘ )
                              if (emty(s))
                                        valid = false;
                                        else{
                                              i = pop(s)
                                              If ( i is not the matching opener of symb)
                                                        valid = false; }
 }  /* end  while */
if (!emty(s))
          valid = false;
if (valid)
         printf(“%s”, “the string is valid”);
        else   printf(“%s”,”the string is invalid “);
```

Note: You may implement the stack using structure. For an empty stack top= -1.

```
struct   stack {
          int  top ;
          int  items[100];
          };
```

PUSH :

```
          If Top >= n Then Print`Overflow message ` and exit
          Top ← Top + 1
          S(Top) ← X
          Return
```

POP :

```
          If Top <= 0 then print ` underflow message ` and exit
          POP ← S(Top)
          Top ← Top – 1
          Return
```