EX 1-3, 5

#include<bits/stdc++.h>

using namespace std;

#include <stdlib.h>

#include <conio.h>

#define MAX 1000

struct Node

{

int data;

struct Node\*next;

}\*top=NULL;

void push(int value)

{

struct Node \*p;

p=(struct Node\*)malloc(sizeof(struct Node));

p->data = value;

if(top==NULL)

{p->next = NULL;}

else

{p->next = top;}

top=p;

cout<<"\nInsertion is Success!!!\n"<<endl;

cout<<"\t\tEnter any key to go to menu"<<endl;

getch();

system("cls");

}

void pop()

{

if(top == NULL) cout<<"\nStack is Empty!!!"<<endl;

else

{

struct Node \*t = top;

cout<<t->data;

top = t->next;

free(t);

}

cout<<"\n\t\tEnter any key to go to menu"<<endl;

getch();

system("cls");

}

typedef struct Stack

{

int data[MAX];

int top;

} stack;

int empty(Stack \*s)

{

if(s->top == -1) {return(1);}

return(0);

}

int full(Stack \*s)

{

if(s->top == MAX -1) {return(1);}

return(0);

}

void pushh(Stack \*s, int x)

{

s->top = s->top+1;

s->data[s->top] = x;

}

int popp(Stack \*s)

{

int x;

x = s->data[s->top];

s->top = s->top -1;

return(x);

}

void rev()

{

Stack s;

int num;

s.top = -1;

cout<<"Enter a decimal number: ";

cin>>num;

if(num!=0)

{

while((num!=0))

{

if(!full(&s))

{

pushh(&s, num%2);

num=num/2;

}

}

}

else

{

cout<<"Empty !!! ";

exit(0);

}

cout<<"\nBinary number is= ";

while(!empty(&s))

{

num = popp(&s);

cout<<num;

}

cout<<endl;

cout<<"\n\t\tEnter any key to go to menu"<<endl;

getch();

system("cls");

}

void display()

{

if(top == NULL) cout<<"\Empty!!!\n";

else

{

struct Node \*t = top;

while(t->next != NULL)

{

cout<<t->data<<endl;

t=t->next;

}

cout<<t->data<<endl;

}

cout<<"\n\t\tEnter any key to go to menu"<<endl;

getch();

system("cls");

}

int main()

{

int x,y;

cout<<"\n\*\*\*\*\*\*\* Stack using Linked List \*\*\*\*\*\*\*"<<endl;

while(1)

{

cout<<"\n\t MENU "<<endl;

cout<<"\t--------"<<endl;

cout<<"\t1. Push\n\t2. Pop\n\t3. Print\n\t4. Reversing Data\n\t5. Exit"<<endl;

cout<<"\nEnter your choice: ";

cin>>x;

system("cls");

switch(x)

{

case 1:

cout<<"Enter the value to be insert: ";

cin>>y;

push(y);

break;

case 2:

pop();

break;

case 3:

display();

break;

case 4:

rev();

break;

case 5:

exit(0);

default:

cout<<"\nWrong selection!!! Please try again!!!"<<endl;

}

}

}

EX 4

#include<bits/stdc++.h>

using namespace std;

#include <stdlib.h>

int top=0;

char s[1000];

void push(char a)

{

s[top] = a;

top++;

}

void pop()

{

if (top==0)

{

cout<<"\nClosing parentheses not matched."<<endl;

exit(0);

}

else {top--;}

}

void PRINT()

{

if (top==0)

cout<<"\nValid."<<endl;

else

cout<<"\nOpening parentheses not end."<<endl;

}

int main()

{

string a;

cout<<"Please enter the input:"<<endl;

cin>>a;

for(int i=0; i<a.length();i++)

{

if(a[i]=='(')

{ push(a[i]); }

else if(a[i]==')')

{pop();}

}

PRINT();

}