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| --- |
| /\*Description: Evaluation of postfix expression |
|  | \* Learner: ARSHEE QURESHI |
|  | \* created on: 27th JULY 2017 |
|  | \*/ |
|  |  |
|  | #include<stdio.h> |
|  |  |
|  | #include<ctype.h> //for isdigit() function |
|  |  |
|  | typedef struct conversion |
|  | { |
|  | char a[30]; |
|  | int top; |
|  | }stack; |
|  |  |
|  | void push(stack \*s,char opr) |
|  | { |
|  | if(s->top>29) |
|  | { |
|  | printf("stack is full"); |
|  | return ; |
|  | } |
|  | else |
|  | { |
|  | s->top++; |
|  | s->a[s->top]=opr; |
|  | } |
|  | } |
|  | char pop(stack \*s) |
|  | { |
|  | if(s->top==-1) |
|  | { |
|  | printf("stack is empty\n"); |
|  | return 0; |
|  | } |
|  | else |
|  | { |
|  | char data=s->a[s->top--]; |
|  | return data; |
|  | } |
|  | } |
|  |  |
|  |  |
|  |  |
|  | int operation(int num1,int num2,char opr) |
|  | { |
|  | switch(opr) |
|  | { |
|  | case '+': |
|  | return num1+num2; |
|  | case '-': |
|  | return num1-num2; |
|  | case '\*': |
|  | return num1\*num2; |
|  | case '/': |
|  | return num1/num2; |
|  | } |
|  | } |
|  |  |
|  | int evaluate (char post[]) |
|  | { |
|  | int result,n1,n2,i=0; |
|  | char opr; |
|  | stack s; |
|  | s.top=-1; |
|  | while(post[i]!='\0') |
|  | { |
|  | opr=post[i]; |
|  | if(isdigit(opr)) |
|  | push (&s,opr-'0'); |
|  | else |
|  | { |
|  | n1=pop(&s); |
|  | n2=pop(&s); |
|  | result = operation(n1,n2,opr); |
|  | push(&s,result); |
|  | } |
|  | i++; |
|  | } |
|  | return pop(&s); |
|  | } |
|  |  |
|  |  |
|  | int main() |
|  |  |
|  | { |
|  | char postfix[30]; |
|  | printf("\n ENTER POSTFIX EXPRESSION\n"); |
|  | scanf("%s",postfix); |
|  | evaluate (postfix); |
|  | printf("\n\n EVALUATION OF POSTFIX EXPRESSION=%d",evaluate(postfix)); |
|  | return 0; |
|  | } |
|  |  |
|  |  |
|  | /\*ENTER POSTFIX EXPRESSION |
|  | 12345+\*-/ |
|  |  |
|  |  |
|  | EVALUATION OF POSTFIX EXPRESSION=25 |
|  |  |
|  | ------------------ |
|  | (program exited with code: 0) |
|  | Press return to continue |
|  | \*/ |