代码：  
#include<iostream>

#include<stdlib.h>

#include<time.h>

using namespace std;

int main(){

char ch;

float a1,a2,a3;

loop:

cout<<" \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*"<<endl;

cout<<" 主菜单 "<<endl;

cout<<" 欢迎使用计算器"<<endl;

cout<<" 请输入运算法则对应的数字后回车"<<endl;

cout<<" 输入1：进行加减乘除四则运算；"<<endl;

cout<<" 输入2：进行自主运算；"<<endl;

cout<<" 输入3：出题；"<<endl;

cout<<" 输入4：退出程序；"<<endl;

cout<<" \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*"<<endl;

cin>>ch;

switch(ch){

case '1':

// 四则运算

size:

char f1;

char ca;

cout<<" 按下对应字母后回车"<<endl;

cout<<" a：加法；"<<endl;

cout<<" b：减法；"<<endl;

cout<<" c：乘法；"<<endl;

cout<<" d：除法；"<<endl;

cout<<" e:返回主菜单。"<<endl;

cin>>f1;

switch(f1){

case'a':

cout<<"加法：输入两个数（以空格隔开）之后回车"<<endl;

cin>>a1>>a2;

a3=a1+a2;

cout<<a1<<" + "<<a2<<" = "<<a3<<endl;

cout<<endl;

break;

case'b':

cout<<"减法：输入两个数（以空格隔开）之后回车"<<endl;

cin>>a1>>a2;

a3=a1-a2;

cout<<a1<<" - "<<a2<<" = "<<a3<<endl;

cout<<endl;

break;

case'c':

cout<<"乘法：输入两个数（以空格隔开）之后回车"<<endl;

cin>>a1>>a2;

a3=a1\*a2;

cout<<a1<<" × "<<a2<<" = "<<a3<<endl;

cout<<endl;

break;

case'd':

cout<<"除法：输入两个数（以空格隔开）之后回车"<<endl;

cin>>a1>>a2;

a3=a1/a2;

cout<<a1<<" ÷ "<<a2<<" = "<<a3<<endl;

cout<<endl;

break;

case'e':

system("cls");

goto loop;

default:

cout<<"请输入正确的字母选项!"<<endl;

cout<<endl;

goto size;

}

// 后续

cout<<"接下来："<<endl;

cout<<"选1.清屏并返回主菜单；"<<endl;

cout<<"选2.不清屏并继续进行四则运算；"<<endl;

cout<<"选3.清屏并继续进行四则运算；"<<endl;

cout<<"选0.退出程序。"<<endl;

cin>>ca;

switch(ca){

case '1':

system("cls");

goto loop;break;

case '2':

goto size;break;

case '3':

system("cls");

goto size;break;

case '0':

goto tuichu;

default:

goto tuichu;

}

case '2':

// 自主运算

zizhu:

char cb;

float min1;

float max1;

int i,j;

int suiji;

int suiji1;

cout<<" 请输入运算类型："<<endl;

cout<<" 输入1：加法；"<<endl;

cout<<" 输入2：减法；"<<endl;

cout<<" 输入3：乘法；"<<endl;

cout<<" 输入4：除法；"<<endl;

cout<<" 输入5：随机四则运算；"<<endl;

cout<<" 输入6：返回主菜单。"<<endl;

cin>>suiji;

if(suiji==6){

system("cls");

goto loop;

}

srand((unsigned)time(0));

cout<<endl;

cout<<"请输入需要运算次数"<<endl;

cin>>j;

if(j<=0){

cout<<"请输入大于一的整数"<<endl;

goto zizhu;

}

zuizhi1:

cout<<endl;

cout<<"请分别输入运算数据的最小值与最大值(注：只读入整数部分)"<<endl;

cin>>min1>>max1;

if(min1>max1){

cout<<"输反了哦，先输入最小值，在输入最大值"<<endl;

goto zuizhi1;

}

cout<<endl;

for(i=0;i<j;i++){

suiji1=suiji;

float z1,z2,z3;

z1 = (int)min1 + rand() % ((int)max1 - (int)min1 + 1);

z2 = (int)min1 + rand() % ((int)max1 - (int)min1 + 1);

if(suiji1==5){

suiji1 = rand()%4+1;

}

switch(suiji1){

case 1:

z3=z1+z2;

if(z2<0){

cout<<z1<<" + ("<<z2<<") = "<<z3<<'\n';

}

else{

cout<<z1<<" + "<<z2<<" = "<<z3<<'\n';

}break;

case 2:

z3=z1-z2;

if(z2<0){

cout<<z1<<" - ("<<z2<<") = "<<z3<<'\n';

}

else{

cout<<z1<<" - "<<z2<<" = "<<z3<<'\n';

}break;

case 3:

z3=z1\*z2;

if(z2<0){

cout<<z1<<" \* ("<<z2<<") = "<<z3<<'\n';

}

else{

cout<<z1<<" \* "<<z2<<" = "<<z3<<'\n';

}break;

case 4:

if(z2==0){

z2=z2+1;

}

z3=z1/z2;

if(z2<0){

cout<<z1<<" ÷ ("<<z2<<") = "<<z3<<'\n';

}

else{

cout<<z1<<" ÷ "<<z2<<" = "<<z3<<'\n';

}break;

default:

cout<<"请输入正确的运算类型"<<endl;

goto zizhu;

}

}

cout<<endl;

cout<<"接下来："<<endl;

cout<<"选1.清屏并返回主菜单；"<<endl;

cout<<"选2.不清屏并继续进行自主运算；"<<endl;

cout<<"选3.清屏并继续进行自主运算；"<<endl;

cout<<"选0.退出程序。"<<endl;

cin>>cb;

switch(cb){

case '1':

system("cls");

goto loop;break;

case '2':

goto zizhu;break;

case '3':

system("cls");

goto zizhu;break;

case '0':

goto tuichu;

default:

goto tuichu;

}

case '3':

// 出题

chuti:

char cc;

float min2;

float max2;

int k,l;

int suiji2;

int suiji3;/\*suiji2代替suiji3运行switch指令：目的是在随机四则运算出题时，每道题都是随机运算法则\*/

cout<<" 请输入出题类型："<<endl;

cout<<" 输入1：加法；"<<endl;

cout<<" 输入2：减法；"<<endl;

cout<<" 输入3：乘法；"<<endl;

cout<<" 输入4：除法；(注：对于像8.125和0.333...这样的结果，需要四舍五入后保留两位小数)"<<endl;

cout<<" 输入5：随机四则运算出题；(注：对于像8.125和0.333...这样的结果，需要四舍五入后保留两位小数)"<<endl;

cout<<" 输入6：返回主菜单。"<<endl;

cin>>suiji3;

if(suiji2==6){

system("cls");

goto loop;

}

srand((unsigned)time(0));

cout<<endl;

cout<<"请输入题目数量"<<endl;

cin>>l;

if(l<=0){

cout<<"请输入大于一的整数"<<endl;

goto chuti;

}

zuizhi2:

cout<<endl;

cout<<"请分别输入出题数据的最小值与最大值(注：只读入整数部分)"<<endl;

cin>>min2>>max2;

if(min2>max2){

cout<<"输反了哦，先输入最小值，在输入最大值"<<endl;

goto zuizhi2;

}

cout<<endl;

for(k=0;k<l;k++){

float z4,z5,z6,z0;

z4 = (int)min2 + rand() % ((int)max2 - (int)min2 + 1);

z5 = (int)min2 + rand() % ((int)max2 - (int)min2 + 1);

suiji2=suiji3;

if(suiji2==5){

suiji2 = rand()%4+1;

}

switch(suiji2){

case 1:

z6=z4+z5;

if(z5<0){

cout<<z4<<" + ("<<z5<<") = ";

}

else{

cout<<z4<<" + "<<z5<<" = ";

} break;

case 2:

z6=z4-z5;

if(z5<0){

cout<<z4<<" - ("<<z5<<") = ";

}

else{

cout<<z4<<" - "<<z5<<" = ";

} break;

case 3:

z6=z4\*z5;

if(z5<0){

cout<<z4<<" \* ("<<z5<<") = ";

}

else{

cout<<z4<<" \* "<<z5<<" = ";

} break;

case 4:

if(z5==0){

z5=z5+1;

}

z6=z4/z5;

if(z6>=0){

z6=(float)((int)(z6\*100+0.5))/100;

}

else{

z6=(float)((int)(z6\*100-0.5))/100;

}

if(z5<0){

cout<<z4<<" ÷ ("<<z5<<") = ";

}

else{

cout<<z4<<" ÷ "<<z5<<" = ";

} break;

default:

cout<<"请输入正确的出题类型"<<endl;

goto chuti;

break;

}

cin>>z0;

if(z0==z6){

cout<<"恭喜，你答对了！(＾＿＾)☆"<<endl;

}

else{

cout<<"抱歉，你答错了。。(；≧д≦)正确答案是："<<z6<<endl;

}

cout<<endl;

}

cout<<endl;

cout<<"接下来："<<endl;

cout<<"选1.清屏并返回主菜单；"<<endl;

cout<<"选2.不清屏并继续出题；"<<endl;

cout<<"选3.清屏并继续出题；"<<endl;

cout<<"选0.退出程序。"<<endl;

cin>>cc;

switch(cc){

case '1':

system("cls");

goto loop;break;

case '2':

goto chuti;break;

case '3':

system("cls");

goto chuti;break;

case '0':

goto tuichu;

default:

goto tuichu;

}

}

tuichu:

return 0;

}