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#include <iostream>
#include <cstdlib>
#include <time.h>
#include <math.h>

using namespace std;
int rand_alg(int mode)//随机选定加减乘除中的一个运算
{
    char alg;
    srand(int(time(0)));
    if (mode == 1)
    {
        int m = rand() % 10;
        if (m < 5)
        {
            alg = '+';
        }
        else
        {
            alg = '-';
        }
    };
    if (mode == 2)
    {
        int m = rand() % 20;
        if (m < 10)
        {
            if (m < 5)
            {
                alg = '+';
            }
            else
            {
                alg = '-';
            }
        }
        else
        {
            if (m < 15)
            {
                alg = '/';
            }
        }
    }
}

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        }
        else
        {
            alg = '*';
        }
    }

    return alg;
}

int caculate(char alg, int a, int b)//计算出随机选出的运算下的正确值
{
    int right = 0;
    if (alg == '+')
    {
        right = a + b;
    }
    else if (alg == '-')
    {
        right = a - b;
    }
    else if (alg == '*')
    {
        right = a * b;
    }
    else if (alg == '/')
    {
        right = a / b;
        //cout << "ps: Just write the integer part haha " << endl;
    }
    return right;
}

int main()
{
    srand(int(time(0)));
    int num = 3; // 总共循环几次
    clock_t start, end;
    int range = 10; //选择 0 到多少 这个范围的运算
    int mode = 1; //选择困难还是简单模式
    double corr = 0.0; //用于计算最终得分（百分制）
    double time_all = 0.0; //用于计算输入耗时（单位为 s）

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int round = 0; //用于计算最少耗时轮次
int round_min = 0;
double time_min = 1000000;
cout << "how many questions u want? : \n" << endl;
cin >> num;
while (cin.fail())//检验输入是否正确
{
    cin.clear();
    cin.sync();
    while (cin.get() != '\n') {
        continue;
    }
    cout << " input an integer number plz \n" << endl;
    cin >> num;
}
cout << "which range can u accept ? from 0 to ?: \n" << endl;
cin >> range;
while (cin.fail())
{
    cin.clear();
    cin.sync();
    while (cin.get() != '\n') {
        continue;
    }
    cout << " input an integer number plz \n" << endl;
    cin >> range;
}
cout << "which mode do u want ? input 1 for only +&- , or 2 for *&/ extra : \n" << endl;
cin >> mode;
while ((mode != 1) and (mode != 2))
{
    cin.clear();
    cin.sync();
    while (cin.get() != '\n') {
        continue;
    }
    cout << " input 1 or 2 plz \n" << endl;
    cin >> mode;
}

for (int x = 0; x < num; x += 1)

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{
    int a = rand()%range;
    int b = rand()%range;
    char alg = rand_alg(mode);
    if (alg == '/') //防止除数为0，防止不能整除
    {
        while(b == 0) b = rand() % range;
        double y = sqrt(double(range));
        while (a > int(y) or b > int(y))
        {
            if (a > int(y)) a = rand() % range;
            else if (b > int(y)) b = rand() % range;
        }
        int right = caculate('*', a, b);
        a = right;
    }
    int c;
    cout << " so what is " << a << alg << b << '?' << endl;
    int right = caculate(alg, a, b);
    start = clock();
    cin >> c;
    while (cin.fail())
    {
        cin.clear();
        cin.sync();
        while (cin.get() != '\n') {
            continue;
        }
        cout << " input a number plz \n" << endl;
        cin >> c;
    }
    end = clock();
    if (c!=right)
    {
        if (x != (num - 1))
        {
            cout << " u r wrong! and the right answer is " << (a + b) << endl;
        }
        else
        {
            corr = (corr / double(num)) * 100;

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        cout << " u r wrong ,end of the prc and your score is(up to 100): \n "
    << corr << endl;
    }
}
else
{
    if (x != (num -1))
    {
        cout << " u r right!  \n  " << endl;
        corr += 1;
    }
    else
    {
        corr += 1;
        corr = (corr / double(num)) * 100;
        cout << "u r right! end of the prc and your score is(up to 100): \n "
    << corr << endl;
    }
}
x += 1;
double time = end - start;
time_all += time;
round += 1;
if (time < time_min)
{
    time_min = time;
    round_min = round;
}
cout << "the time u cost this round is:  " << time / CLOCKS_PER_SEC << "s \n"
<< endl;
}
double time_avg = time_all / double(num);
cout << "the time u cost on average is:  " << time_avg / CLOCKS_PER_SEC << "s \n" << endl;
cout << "the time u cost at least is:  " << time_min / CLOCKS_PER_SEC << "s  in round "
<< round_min << endl;
    system("pause");
}

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