مهشاد رضایی

401560044

C-calc:

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// C-calc v1.2 Chamran University
#include <stdio.h>
double a;
void squreroot();
void sine();
void cosn();
double powerofq(double, int);
double factorofq();
void operate();
void avg();
void power();
void factor();
void times();
void minus();
void devide();
void plus();
int main()
{
    printf("this is a calculator made out of C\n");
    printf("please enter your first number\n");
    scanf("%lf", &a);
    operate();
}
void operate()
{
    char op;
    printf("\nplease enter your operator (-,+,/,*,^,!,r,a)\"type \'h\' for
help\''\n'');
    scanf(" %c", &op);
    switch (op)
    case '-':
        minus();
        break;
    case '+':
        plus();
        break;
    case '/':
        devide();
        break;
    case '*':
        times();
        break;
    case '^':
        power();
```

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break;
    case '!':
        factor();
        break;
    case 'r':
        squreroot();
        break;
    case 'a':
        avg();
        break;
    case 'z':
        a = 0;
        main();
        break;
    case 'e':
        return;
        break;
    case 'h':
        printf("help page:\n1.\'e\':exit\n2.\'z\':for reseting the
number\n3.\'h\':this page\n4.\'r\':its for squreroot\n5.\'a\':for average
calculation.\n6:\'s\':sin.\n7.\'c\':cos");
        operate();
        break;
    case 's':
        sine();
        break;
    case 'c':
        cosn();
        break;
    }
void plus()
    double b;
    printf("enter your next number\n:");
    scanf("%lf", &b);
    a = a + b;
    printf("%lf", a);
    operate();
}
void minus()
    double b;
    printf("enter your next number\n:");
    scanf("%lf", &b);
    a = a - b;
    printf("%lf", a);
    operate();
void times()
{
    double b;
    printf("enter your next number\n:");
    scanf("%lf", &b);
```

```
a = a * b;
    printf("%lf", a);
    operate();
void devide()
{
    double b;
    printf("enter your next number\n:");
    scanf("%lf", &b);
    a = a / b;
    printf("%lf", a);
    operate();
}
void power()
{
    int i, b;
    const double statica = a;
    printf("enter your next number\n:");
    scanf("%d", &b);
    if (b == 0)
    {
        a = 1;
        printf("%lf", a);
    }
    if (b < 0)
    {
        b = b * -1;
        for (i = 1; i < b; i++)
           a = a * statica;
        a = 1 / a;
        printf("%lf", a);
    }
    if (b > 0)
    {
        for (i = 1; i < b; i++)
            a = a * statica;
        printf("%lf", a);
    }
    operate();
}
void factor()
    double s = 1;
    int i;
    for (i = 1; i \le a; i++)
        s = s * i;
    printf("%lf", s);
    operate();
void squreroot()
{
    // Babylonian method
    double r = a / 2;
    int i;
```

```
for (i = 0; i < 10; i++)
    {
        r = (r + a / r) / 2;
    }
    printf("%lf", r);
    operate();
}
void avg()
{
    int n, i;
    float a[n], s = 0;
    printf("how many numbers you got?\n:");
    scanf("%d", &n);
    printf("now insert your numbers one by one:\n");
    for (i = 0; i < n; i++)
        scanf("%f", &a[i]);
    for (i = 0; i < n; i++)
        s = s + a[i];
    s = s / n;
    printf("avg of your numbers is %f\n", s);
    main();
}
void sine()
{
    int inta=a;
    int deg = inta%360;
    double rad = deg * 3.1415926535897/180;
    int i,f;
    a=0;
    for(i = 0; i < 100; i++)
        a= a + powerofq(-1, i) * powerofq(rad, 2*i+1) / factorofq( 2*i+1 );
    printf("%lf",a);
    operate();
}
void cosn()
{
    int inta=a, deg=inta%360;
    double rad = deg * 3.1415926535897 / 180;
    int i;
    a=0;
    for(i = 0; i < 100; i++)
        a = a + powerofq(-1, i) * powerofq(rad, 2 * i) / factorofq(2 * i);
    printf("%lf",a);
    operate();
double factorofq(int b)
{
   if (b == 0)
    return 1;
  else
```

```
return(b * factorofq(b-1));
double powerofq(double ap, int b)
{
    int i;
    const double staticap = ap;
    if (b == 0)
        ap = 1;
        return ap;
    }
    if (b < 0)
    {
        b = b * -1;
        for (i = 1; i < b; i++)
            ap = ap * staticap;
        ap = 1 / ap;
        return ap;
    }
    if (b > 0)
    {
        for (i = 1; i < b; i++)
            ap = ap * staticap;
        return ap;
    }
}
```

- (دنباله تیلور (استفاده شده در سینوس و کسینوس .1
- روش بابیلون برای گرفتن ریشه دوم .2

در صورت وجود مشکل یا سوال به این آی دی در تلگرام پیام بدین