Run | Debug | Stop | Share | Save | {} Beautify

Language C

main.c

```c
#include <stdio.h>
#include <time.h>
#include <sys/resource.h>
#include <stdlib.h>

// Get memory usage in KB
long get_memory_usage_kb() {
    struct rusage usage;
    getrusage(RUSAGE_SELF, &usage);
    return usage.ru_maxrss;
}

int is_palindrome(int num) {
    int original = num, reversed = 0, remainder;
    while (num != 0) {
        remainder = num % 10;
        reversed = reversed * 10 + remainder;
        num /= 10;
    }
    return original == reversed;
}

int main() {
    int number = 12321;
    int runs = 1000000;

    clock_t compile_start = clock();
```

input

```
cc1: fatal error: palindrome.c: No such file or directory
compilation terminated.
Compilation Time: 0.126000 ms
Average Execution Time per run: 0.027122 µs
Memory Usage (diff): 0 KB
Number 12321 is a palindrome
```

```c
        clock_t compile_start = clock();
        system("gcc palindrome.c -o palindrome_exec");
        clock_t compile_end = clock();
        double compilation_time_ms = 1000.0 * (compile_end - compile_start) / CLOCKS_PER_SEC;

        long mem_before = get_memory_usage_kb();
        clock_t start = clock();

        int result = 0;
        for (int i = 0; i < runs; i++) {
            result = is_palindrome(number);
        }

        clock_t end = clock();
        long mem_after = get_memory_usage_kb();

        double exec_time_us = 1e6 * (end - start) / (CLOCKS_PER_SEC * runs);

        printf("Compilation Time: %.6f ms\n", compilation_time_ms);
        printf("Average Execution Time per run: %.6f µs\n", exec_time_us);
        printf("Memory Usage (diff): %ld KB\n", mem_after - mem_before);
        printf("Number %d is %sa palindrome\n", number, result ? "" : "not ");

        return 0;
}
```

input

```
Compilation Time: 0.126000 ms
Average Execution Time per run: 0.027122 µs
Memory Usage (diff): 0 KB
Number 12321 is a palindrome

...Program finished with exit code 0
Press ENTER to exit console.
```

```c
#include <stdio.h>
#include <time.h>
#include <sys/resource.h>
#include <stdlib.h>

// Get memory usage in KB
long get_memory_usage_kb() {
    struct rusage usage;
    getrusage(RUSAGE_SELF, &usage);
    return usage.ru_maxrss;
}

long long deep_recursion_sum(long long n) {
    if (n <= 0) return 0;
    return n + deep_recursion_sum(n - 1);
}

int main() {
    long long n = 5000;
    int runs = 100;

    clock_t compile_start = clock();
    system("gcc deeprecursion.c -o deeprecursion_exec");
    clock_t compile_end = clock();
    double compilation_time_ms = 1000.0 * (compile_end - compile_start) / CLOCKS_PER_SEC;

    long mem_before = get_memory_usage_kb();
    clock_t start = clock();
```

input

```
cc1: fatal error: deeprecursion.c: No such file or directory
compilation terminated.
Compilation Time: 0.101000 ms
Average Execution Time per run: 58.370000 µs
Memory Usage (diff): 128 KB
Sum from 5000 down to 0 is 12502500
```

```c
22    clock_t compile_start = clock();
      system("gcc deeprecursion.c -o deeprecursion_exec");
24    clock_t compile_end = clock();
25    double compilation_time_ms = 1000.0 * (compile_end - compile_start) / CLOCKS_PER_SEC;
26
27    long mem_before = get_memory_usage_kb();
28    clock_t start = clock();
29
30    long long result = 0;
31    for (int i = 0; i < runs; i++) {
32        result = deep_recursion_sum(n);
33    }
34
35    clock_t end = clock();
36    long mem_after = get_memory_usage_kb();
37
38    double exec_time_us = 1e6 * (end - start) / (CLOCKS_PER_SEC * runs);
39
40    printf("Compilation Time: %.6f ms\n", compilation_time_ms);
41    printf("Average Execution Time per run: %.6f µs\n", exec_time_us);
42    printf("Memory Usage (diff): %ld KB\n", mem_after - mem_before);
43    printf("Sum from %lld down to 0 is %lld\n", n, result);
44
45    return 0;
46  }
47
48
49
```

input

```
Compilation Time: 0.101000 ms
Average Execution Time per run: 58.370000 µs
Memory Usage (diff): 128 KB
Sum from 5000 down to 0 is 12502500

...Program finished with exit code 0
Press ENTER to exit console.
```

OnlineGDB

online compiler and debugger for c/c++

code. compile. run. debug. share.

IDE
My Projects
Classroom new
Learn Programming
Programming Questions
Sign Up
Login

Run | Debug | Stop | Share | Save | {} Beautify

Language C

main.c

```c
#include <stdio.h>
#include <math.h>
#include <time.h>
#include <sys/resource.h>
#include <stdlib.h>

// Get memory usage in KB
long get_memory_usage_kb() {
    struct rusage usage;
    getrusage(RUSAGE_SELF, &usage);
    return usage.ru_maxrss;
}

double maclaurin_sin(double x, int n) {
    double result = 0.0;
    double term = x;
    double sign = 1.0;
    unsigned long factorial = 1;
    result += term;

    for (int k = 1; k < n; k++) {
        factorial *= (2*k) * (2*k + 1);
        sign *= -1;
        term = sign * pow(x, 2*k + 1) / factorial;
        result += term;
    }

    return result;
```

input

```
cc1: fatal error: maclaurin.c: No such file or directory
compilation terminated.
Compilation Time: 0.109000 ms
Average Execution Time per run: 0.242700 µs
Memory Usage (diff): 128 KB
Maclaurin approx: 0.841470984807897
math.h sin(x): 0.841470984807897
Absolute error: 0.000000000000000
```

main.c

```c
27          return result;
28  }
29
30  int main() {
31      double x = 1.0;
32      int terms = 12;
33      int runs = 100000;
34
35      clock_t compile_start = clock();
36      system("gcc maclaurin.c -o maclaurin_exec -lm");
37      clock_t compile_end = clock();
38      double compilation_time_ms = 1000.0 * (compile_end - compile_start) / CLOCKS_PER_SEC;
39
40      long mem_before = get_memory_usage_kb();
41      clock_t start = clock();
42
43      for (int i = 0; i < runs; i++) {
44          maclaurin_sin(x, terms);
45      }
46
47      clock_t end = clock();
48      long mem_after = get_memory_usage_kb();
49
50      double exec_time_us = 1e6 * (end - start) / (CLOCKS_PER_SEC * runs);
51      double approx = maclaurin_sin(x, terms);
52      double actual = sin(x);
53
54      printf("Compilation Time: % 6f ms\n", compilation_time_ms);
```

input

```
cc1: fatal error: maclaurin.c: No such file or directory
compilation terminated.
Compilation Time: 0.109000 ms
Average Execution Time per run: 0.242700 µs
Memory Usage (diff): 128 KB
Maclaurin approx: 0.841470984807897
math.h sin(x): 0.841470984807897
        0000000000000
```

```c
long mem_before = get_memory_usage_kb();
clock_t start = clock();

for (int i = 0; i < runs; i++) {
    maclaurin_sin(x, terms);
}

clock_t end = clock();
long mem_after = get_memory_usage_kb();

double exec_time_us = 1e6 * (end - start) / (CLOCKS_PER_SEC * runs);
double approx = maclaurin_sin(x, terms);
double actual = sin(x);

printf("Compilation Time: %.6f ms\n", compilation_time_ms);
printf("Average Execution Time per run: %.6f µs\n", exec_time_us);
printf("Memory Usage (diff): %ld KB\n", mem_after - mem_before);
printf("Maclaurin approx: %.15f\n", approx);
printf("math.h sin(x): %.15f\n", actual);
printf("Absolute error: %.15f\n", fabs(approx - actual));

return 0;
}
```

```
Memory Usage (diff): 128 KB
Maclaurin approx: 0.841470984807897
math.h sin(x): 0.841470984807897
Absolute error: 0.000000000000000

...Program finished with exit code 0
Press ENTER to exit console.
```