22MCS1009 Atiendriya Verma

Write an OpenMP program using C incorporating guided scheduling with the last private construct to compute sinx for given x. The user should supply x and a positive integer n. We compute the sine of x using the series and the computation should use all terms in the series up through the term involving xn sin x = x - x 3 /3! + x5 /5! - x 7 /7! + x9 /9! .......

#include <omp.h>

#include <math.h>

#include <stdio.h>

int main(int argc, char\* argv[]) {

double x, sinx = 0.0;

int n, i;

int factorial(int n) {

int result = 1;

for (int i = 1; i <= n; i++) {

result \*= i;

}

return result;

}

printf("Enter x and n: ");

scanf("%lf %d", &x, &n);

#pragma omp parallel for schedule(guided) lastprivate(i) reduction(+:sinx)

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

sinx += pow(-1, i) \* pow(x, 2\*i+1) / factorial(2\*i+1);

}

printf("sin(%lf) = %lf\n", x, sinx);

return 0;

}

