Assignment-1

Sourav Das (21021085@uopca.unipune.ac.in)

Write a program to sort n real values in ascending order using bubble sort algorithm. Test is using a list of 10 real values, some of which are negative.

```
! Sourav Das (1st Semester); ID: 21021085
program bubble_sort
    implicit none

    integer :: i, n
    real :: list(100), temp, swapped

    write(*,"(a24)") "No. of elements to sort:"
    read(*,*) n
    write(*,"(a40)") "Enter unsorted numbers with space/comma:"
    read(*,*) (list(i), i=1,n)

    ! implementing bubble-sorting algorithm (ascending order)
    ! implementation using while loop/indeterminate do loop
    do
        swapped = 0
        do i = 1, n-1  ! traversing until 2nd last element, it will be compared with last
            if (list(i) > list(i+1)) then
                ! swapping ith element with (i+1)th
                temp = list(i)
                list(i) = list(i+1)
                list(i+1) = temp
                swapped = 1
                ! if this IF block executes, then swapping done, so swapped = 1
            end if
        end do
        if (swapped == 0) then ! no more swapping to be done
            write(*,"(a23)") "The sorted numbers are:"
            write(*, 10) (list(i), i=1,n) ! writing column-wise
            stop    ! stopping execution
        end if
    end do
    10 format(100f10.2) ! Maximum 100 numbers can be written with this format
end program bubble_sort
! OUTPUT
! No. of elements to sort:
! 10
! Enter unsorted numbers with space/comma:
! 3.14, 2.72, 1729, -42.0, 6.63, -6.02, 58.47, -0.09, 1.41, -496
! The sorted numbers are:
!    -496.00   -42.00    -6.02    -0.09     1.41     2.72     3.14     6.63    58.47  1729.00
```