```
PROGRAM characters

  IMPLICIT NONE

  CHARACTER (LEN=*), PARAMETER :: headline="Man United will win the league?"
  CHARACTER (LEN=*), PARAMETER :: fname="Steve", lname="Smith"
  CHARACTER (LEN=11) :: fullname

  ! *** Example of concatenation of two strings ***
  fullname=fname//lname
  PRINT*,fullname

  !*** Concatenation of a string a character and a string ***
  fullname=fname//" "//lname
  PRINT*,fullname

  ! *** Example of a substring ***
  PRINT*,headline(5:10)

END PROGRAM characters


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PROGRAM characters2

  IMPLICIT NONE

  CHARACTER (LEN=*), PARAMETER :: fname="Paul", lname="Scholes"
  CHARACTER (LEN=20) :: fullname !** NOTE 20 characters!!!

  fullname=fname//" "//lname !** Concatination
  PRINT*,fullname," will score in Euro-2004!"
  PRINT*,TRIM(fullname)," will score in Euro-2004!"

END PROGRAM characters2


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PROGRAM characters3

  IMPLICIT NONE

  CHARACTER (LEN=*), PARAMETER :: fname="     Paul", lname="Scholes"
  CHARACTER (LEN=20) :: fullname

  fullname=fname//" "//lname
  PRINT*,fullname," will score in Euro-2004!"
  PRINT*,TRIM(fullname)," will score in Euro-2004!"
  PRINT*,TRIM(ADJUSTL(fullname))," will score in Euro-2004!"

END PROGRAM characters3



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PROGRAM output_formats

  IMPLICIT NONE

  REAL :: c = 1.2786453e-8, d = 0.6574893e2
  INTEGER :: n = 200289, k = 45, i = 2
  CHARACTER (LEN=5) :: str="Hello"

  !*** Example of PRINT statements. Explanations in main text below.
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  PRINT "('    5   10   15   20   25   30   40')"
  PRINT "('----|----|----|----|----|----|----|')"

  PRINT "(i6)", k
  PRINT "(i6.3)", k
  PRINT "(3i10)", n, k, i
  PRINT "(i10,i3,i5)", n, k, i
  PRINT "(a10)",str
  PRINT "(f12.3)", d

  PRINT "('----|----|----|----|----|----|----|')"

  PRINT "(e12.4)", c
  PRINT '(/,3x,"n = ",i6, 3x, "d = ",f7.4)', n, d


END PROGRAM output_formats


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PROGRAM mclau_format

!** Program to calculate SIN(x) to 'n' terms of the Mclaurin Series

  IMPLICIT NONE

  INTEGER :: i,sign=-1,n
  REAL    :: sinx,x,dummy,exact,error

  PRINT*,'Enter the value of x you require: '
  READ*,x
  PRINT*,'Enter the number of terms you require: '
  READ*,n

  exact=SIN(x)
  sinx=x
  dummy=x

  error=ABS(exact-sinx)

  PRINT "(/,a5,2x,a10,a10,/)","Terms","Approx","Error"
  PRINT "(i3,4x,f10.6,f10.5)",1,sinx,error

  DO i=3,2*n-1,2
  !** Loop through starting with the second term (-x^3/3!) ans stopping
  !** loops up to 2*n-1 for the last term.

    dummy=dummy*x**2/(i*(i-1)) ! *** Calculate to rquired factorial
    sinx=sinx+sign*dummy       ! *** Calculate the new approximation
    sign=-sign                 ! *** update the sign parameter

    error=ABS(exact-sinx)
    PRINT "(i3,4x,f10.6,f10.5)",(i-1)/2+1,sinx,error
  END DO

  PRINT '(/," The approximation is for x=",f10.6)',x
  PRINT '(" Number of terms in the approximation = ",i3)',n
  PRINT '(" The approximation = ",f10.6)',sinx
  PRINT '(" The true value is = ",f10.6)',exact

END PROGRAM mclau_format



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