

LAMPIRAN 1C
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PROGRAM : Merubah Bilangan ke Bentuk Radix
        by : P U R W A N T O ( I p o e n k )

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CHARACTER*3 KDN
DIMENSION NQOUT(50),NREM(50)
7  WRITE (*,'(24(/))')
   WRITE (*,'(A,\)')'MASUKKAN BILANGAN YANG DIKONVERSI ?...'
   READ (*,'(I10)') NBIL
   WRITE (*,'(A,\)')'MASUKKAN RADIX BILANGAN ?...'
   READ (*,'(I10)') NRAD

CHECKING BILANGAN ADALAH BULAT POSITIF

IF ( NBIL.LT.0 ) THEN
  WRITE (*,98)
98  FORMAT (24(/),10X,'BILANGAN YANG DIKONVERSI NEGATIF !!!',/,
* 12X,32('███'),3(/))
   GOTO 100
ELSE
  GOTO 99
ENDIF
99  WRITE (*,'(24(/))')
   WRITE (*,22)
22  FORMAT(12X,'MERUBAH BILANGAN KE BENTUK RADIX ',/,
*12X,32('███'),3(/))

NBIL1 = NBIL
K = 0
IF (NBIL.LT.NRAD) THEN
  WRITE (*,33)NRAD,NBIL1
  WRITE (*,'(I2)')NBIL1
  GOTO 100
ELSE

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DO 10 I=1,10
  NREM(I) = MOD(NBIL, NRAD)
  NQOUT(I) = (NBIL-NREM(I))/NRAD
  NBIL = NQOUT(I)
  K = K+1
  IF (NQOUT(I).EQ.0) GOTO 11
10  CONTINUE
  ENDIF
C
11  WRITE (*,33) NRAD,NBIL1
33  FORMAT ('BILANGAN RADIX-',I1,' DARI ',I10,' ADALAH : ',\ )
DO 20 I = K,1,-1
  WRITE (*,'(I2)')NREM(I)
20  CONTINUE
C
100 WRITE(*,'(3(/),A,\)') 'MENCoba LAGI (Y/N) ?...'
    READ(*,'(A)') KON
    IF (KON.EQ.'Y'.OR.KON.EQ.'y') THEN
      GO TO 7
    ELSE
      STOP 'Terima Kasih ....!'
    ENDIF
END

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WRITE (2,9335)
9335 FORMAT (12X,'■',48(' - '), '■')
2222 FORMAT(12X,' | x [',I3,' ] =',E17.8,2X,E17.8,' |')
WRITE(2,9336)
9336 FORMAT(45X,'by : I p o e n k ')
WRITE(2,9337)N-1
9337 FORMAT(/,12X,'■ Ket : k = 0 ...',I3)
WRITE(2,'(15(/))')

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C PERHITUNGAN TRANSFORMASI FOURIER DISKRET SECARA LANGSUNG

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ARG = 2.*3.14159265358979323846/FLOAT(N)
DO 1000 I =1,N
  N1=I-1
  TOTR = 0.
  TOTI = 0.
  DO 1001 K = 1,N
    WR(K) = COS(ARG*N1*(K-1))
    WI(K) = -SIN(ARG*N1*(K-1))
    TR(K) = XREAL(K) * WR(K) - XIMAG(K) * WI(K)
    TI(K) = XIMAG(K) * WR(K) + XREAL(K) * WI(K)
    TOTR = TOTR + TR(K)
    TOTI = TOTI + TI(K)
1001 CONTINUE
XR(I) = TOTR
XI(I) = TOTI
1000 CONTINUE

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C CETAK HASIL

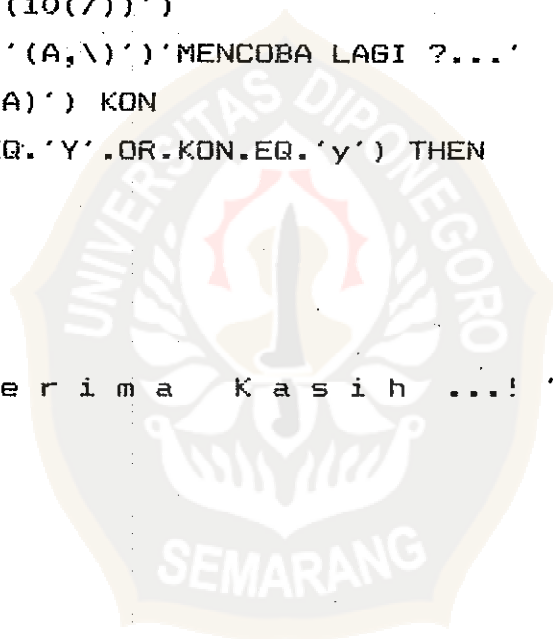
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WRITE (2,9443)
9443 FORMAT (13X,'BARISAN KELUARAN PERHITUNGAN TFD :',/,
* 13X,48(' ■■■'),/)
WRITE (2,9444)
9444 FORMAT (12X,'■',48(' - '), '■',/,
* 12X,' | X [n] X REAL X IMAGINER |',/,
* 12X,'■',48(' - '), '■')

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DO 60 K = 1,N
    WRITE (2,1111)K-1,XR(K),XI(K)
60 CONTINUE
    WRITE (2,9445)
9445 FORMAT (12X,'■',48('-'),'■')
1111 FORMAT(12X,' | X [',I3,'] =',E17.8,2X,E17.8,' |')
    WRITE(2,9446)
9446 FORMAT(45X,'by : I p o e n k ')
    WRITE(2,9447)N-1
9447 FORMAT(/,12X,'■ Ket : n = 0 ...',I3)
    WRITE(*,'(10(/))')
    WRITE (*,'(A,\)')'MENCoba LAGI ?...'
    READ(*,'(A)') KON
    IF (KON.EQ.'Y'.OR.KON.EQ.'y') THEN
        CLOSE(1)
        CLOSE(2)
        GO TO 4
    ELSE
        STOP 'Terima Kasih ...!'
    ENDIF
END
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2222  FORMAT(12X, ' | x [', I3, ' ] =', E17.8, 2X, E17.8, ' | ' )
      WRITE(2, 9336)
9336  FORMAT(45X, 'by : I p o e n k ' )
      WRITE(2, 9337) N-1
9337  FORMAT(/, 12X, ' ■ Ket : k = 0 ...', I3)
      WRITE(2, '(15(/))')

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C CHECKING N ADALAH POWER OF 2

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      DO 10 I = 1, 15
          NU = I
          N1 = 2**NU
          IF (N.EQ.N1) GO TO 100
10     CONTINUE
      WRITE (*, 110) N
110    FORMAT (6X, 'N = ', I3, ' , DATA BUKAN POWER OF 2 UNTUK TFC

77     WRITE(*, '(//, 6X, A, \)') 'MENCoba LAGI (Y/N) ?...'
      READ(*, '(A)') KDN
      IF (KDN.EQ.'Y'.OR.KDN.EQ.'y') THEN
          CLOSE(1)
          CLOSE(2)
          GO TO 4
      ELSE
          STOP ' T e r i m a   K a s i h   ...!'
      ENDIF
100    N2 = N/2
      NU1 = NU-1
      K = 0
      DO 30 L = 1, NU
11     DO 40 I = 1, N2
          M = K/(2**NU1)
          KOE = 0
          CALL IBITR(M, NU, KOE)
          P = FLOAT(KOE)
          ARG = 2.*3.14159265358979323846*P/FLOAT(N)
          C = COS(ARG)
          S = SIN(ARG)

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K1 = K + 1
K1N2 = K1 + N2
TREAL = XREAL(K1N2)*C + XIMAG(K1N2)*S
TIMAG = XIMAG(K1N2)*C - XREAL(K1N2)*S
XREAL(K1N2) = XREAL(K1) - TREAL
XIMAG(K1N2) = XIMAG(K1) - TIMAG
XREAL(K1) = XREAL(K1) + TREAL
XIMAG(K1) = XIMAG(K1) + TIMAG
K = K+1
40 CONTINUE
K = K + N2
IF(K.LT.N) GO TO 11
K = 0
NU1 = NU1-1
N2 = N2/2
30 CONTINUE
DO 50 K =1,N
J = K-1
KOE = 0
CALL IBITR(J,NU,KOE)
I = KOE + 1
IF (I.GE.K) GO TO 50
TREAL = XREAL(K)
TIMAG = XIMAG(K)
XREAL(K) = XREAL(I)
XIMAG(K) = XIMAG(I)
XREAL(I) = TREAL
XIMAG(I) = TIMAG
50 CONTINUE
C
C CETAK HASIL
C
WRITE (2,9443)
9443 FORMAT (13X, 'BARISAN KELUARAN DARI TFC :',/,
* 13X,48(' '),/,)
WRITE (2,9444)
9444 FORMAT (12X, '■',48(' - '), '■',/,)

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