

POINTS TO PONDER

3.1 Rewrite procedure DATES, using just one array of cumulative days instead of a separate array for leap years:

```
DECLARE NDAYS(0:12)
  INITIAL (0,31,59,90,120,151,181,212,243,273,304,334,365);
```

Rewrite it using one non-cumulative table of days:

```
DECLARE NDAYS(0:12)
  INITIAL (0,31,28,31,30,31,30,31,31,30,31,30,31);
```

How do these approaches compare with the ones we showed?

3.2 Revise the following program, after determining what it does.

```
IF X = Y & X = Z & X = W THEN IF X = 0 THEN GO TO DONE;
                                ELSE L1: DO;
                                    SUM = 4*X;
                                    PUT SKIP DATA(SUM);
                                END L1;

ELSE IF X <= Y THEN
  IF X <= Z THEN
    IF X <= W THEN
      IF Y <= Z THEN
        IF Y <= W THEN
          IF Z <= W THEN PUT SKIP DATA(X,Y,Z,W);
          ELSE PUT SKIP DATA(X,Y,W,Z);
          ELSE PUT SKIP DATA(X,W,Y,Z);
        ELSE IF W < Z THEN PUT SKIP DATA(X,W,Z,Y);
        ELSE IF Y <= W THEN PUT SKIP DATA(X,Z,Y,W);
        ELSE PUT SKIP DATA(X,Z,W,Y);
      ELSE IF Y <= Z THEN PUT SKIP DATA(W,X,Y,Z);
      ELSE PUT SKIP DATA(W,X,Z,Y);
    ELSE IF W < Z THEN PUT SKIP DATA(W,Z,X,Y);
    ELSE IF W < X THEN PUT SKIP DATA(Z,W,X,Y);
    ELSE IF W < Y THEN PUT SKIP DATA(Z,X,W,Y);
    ELSE PUT SKIP DATA(Z,X,Y,W);
  ELSE IF Y <= Z THEN
    IF Y <= W THEN
      IF X <= Z THEN
        IF X <= W THEN
          IF Z <= W THEN PUT SKIP DATA(Y,X,Z,W);
          ELSE PUT SKIP DATA(Y,X,W,Z);
          ELSE PUT SKIP DATA(Y,W,X,Z);
        ELSE IF W < Z THEN PUT SKIP DATA(Y,W,Z,X);
        ELSE IF X <= W THEN PUT SKIP DATA(Y,Z,X,W);
        ELSE PUT SKIP DATA(Y,Z,W,X);
      ELSE IF X <= Z THEN PUT SKIP DATA(W,Y,X,Z);
      ELSE PUT SKIP DATA(W,Y,Z,X);
    ELSE IF W < Z THEN PUT SKIP DATA(W,Z,Y,X);
    ELSE IF W < Y THEN PUT SKIP DATA(Z,W,Y,X);
    ELSE IF W < X THEN PUT SKIP DATA(Z,Y,W,X);
    ELSE PUT SKIP DATA(Z,Y,X,W);
```

3.3 Rewrite the following Fortran function, attempting to make better use of the regularity of the situation.