CAPITULO 8

3. Rewrite the following code segment using a multiple-selection statement in the following languages:

LITERAL A

```
Select Case (k)
   Case (1, 2)
     J = 2 * K - 1
   Case (3, 5)
     J = 3 * K + 1
   Case (4)
     J = 4 * K - 1
   Case (6, 7, 8)
     J = K - 2
   Case Default
     Print *, 'Error in Select, K = ', K
End Select
```

LITERAL B

```
case k is
       when 1 | 2 => j := 2 * k - 1;
       when 3 | 5 => j := 3 * k + 1;
       when 4 => j := 4 * k - 1;
       when 6..8 => j := k - 2;
       when others =>
         Put ("Error in case, k =');
         Put (k);
         New_Line;
end case ;
```

LITERAL C

```
switch (k)
     {
      case 1: case 2:
        j = 2 * k - 1;
        break ;
```

```
      case 3: case 5:
        j = 3 * k + 1;
        break ;
      case 4:
        j = 4 * k - 1;
        break ;
      case 6: case 7: case 8:
        j = k - 2;
        break ;
      default :
        printf("Error in switch, k =%d\n", k);
      }
```

4. Consider the following C program segment. Rewrite it using no gotos or breaks. j = -3; for (i = 0; i <3; i++) switch (j + 2) case 3: case 2: j–; break; case 0: j += 2; break; default: j = 0; if (j >0) break; j = 3 - i

```
    j = -3;
    key = j + 2;
    for (i = 0; i < 10; i++){
       if ((key == 3) || (key == 2))

         j--;
       else if (key == 0)
         j += 2;
       else j = 0;
       if (j > 0)
         break ;
       else j = 3 - i;
      }
```

5. In a letter to the editor of CACM, Rubin (1987) uses the following code segment as evidence that the readability of some code with gotos is bet- ter than the equivalent code without gotos. This code finds the first row of an n by n integer matrix named x that has nothing but zero values.

```
for (i = 1; i <= n; i++) {   for (j = 1; j <= n; j++)
      if (x[i][j] != 0)      goto reject;  println
   ('First all-zero row is:', i);  break; reject: }
```

Rewrite this code without gotos in one of the following languages: C, C++, Java, or Ada. Compare the readability of your code to that of the example code.

LENGUAJE C

```
for (i = 1; i <= n; i++) {
  flag = 1;
  for (j = 1; j <= n; j++)
    if (x[i][j] <> 0) {
      flag = 0;
      break ;
     }
  if (flag == 1) {
    printf("First all-zero row is: %d\n", i);
    break ;
   }
 }
```

LENGUAJE ADA

```
for I in 1..N loop
  Flag := true ;
  for J in 1..N loop
    if X(I, J) /= 0 then
      Flag := false ;
exit ;
    end if ;
  end loop ;
  if Flag = true then
    Put("First all-zero row is: ");
    Put(I);
    Skip_Line;
    exit ;
  end if ;
end loop ;
```