CvP - Werkcollege 8

Exercise 1   What is the definition of control structure?

Exercise 2   What is unusual about C's multiple-selection statement?

Exercise 3   Explain how C#'s switch statement is safer than that of C.

Exercise 4   What advantage does Java's `break` statement have over C's `break` statement?

Exercise 5   Explain the advantages and disadvantages of the Java `switch` statement, compared to C++'s `switch` statement.

Exercise 6   State one of the main legitimate needs for gotos.

Exercise 7   Rewrite the following pseudocode segment using a loop structure in the specified languages:

```
  k = (j + 13) / 27
loop:
  if k > 10 then goto out
  k = k + 1
  i = 3 * k - 1
  goto loop
out:
  ...
```

(a) Fortran 95

(b) Ada

(c) C, C++, Java, or C#

(d) Python

(e) Ruby

Assume all variables are integer type. Which language, for this code, has the best writability, the best readability, and the best combination of the two.

Exercise 8 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 better 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, C#, or Ada. Compare the readability of your code to that of the example code.

Exercise 9 Write the following C for statement in Java:

```
int i = 7;
for (i--; i--; i--)
// Print the value of i
```