The *TriangleType* Problem

Context:

Global Positioning System (GPS) determines the position of the receiver using triangulation (a geometric and trigonometric technique). As a part of the computation the system needs to determine the triangle type.

Problem statement:

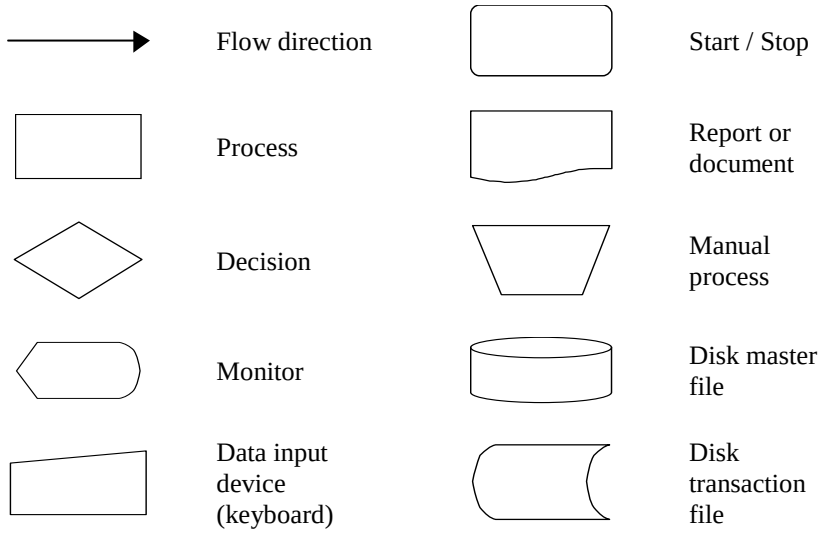
The input to the TriangleType function are three numbers *a*, *b* and *c* that represent the lengths of the three sides of the triangle. Based on these inputs the function determines the type of the triangle, which can be

- Equilateral (i.e. all three sides are equal)
- Isosceles (two equal sides)
- Scalene (three unequal sides)

The function returns the result in the form of the character string, e.g. 'Equilateral' if the triangle is equilateral.

1. Prepare the Software Requirements document for the TriangleType function.

2. Prepare a flowchart for the above function using the basic symbols shown below.



Software Requirements Specification (SRS)

Based on the IEEE-830-1998 standard, available from
http://www.cs.bham.ac.uk/~exc/Teaching/STesting/Web_resources.html (local access only)

Template of SRS organised by functional hierarchy (incomplete)

3. Specific requirements
- 3.1 External interface requirements
  - 3.1.1 User interfaces
  - 3.1.2 Hardware interfaces
  - 3.1.3 Software interfaces
    - 3.1.3.1 Item 1
      - 3.1.3.1.1 Name
      - 3.1.3.1.2 Description of purpose
      - 3.1.3.1.3 Source of input or destination of output
      - 3.1.3.1.4 Valid range, accuracy and/or tolerance
      - 3.1.3.1.5 Units of measure
      - 3.1.3.1.6 Relationship to other inputs/outputs
      - 3.1.3.1.7 Data formats
      - 3.1.3.1.8 End messages
    - 3.1.3.2 Item 2
      - 3.1.3.2.1 Name
      - 3.1.3.2.2 Description of purpose
      - 3.1.3.2.3 Source of input or destination of output
      - 3.1.3.2.4 Valid range, accuracy and/or tolerance
      - 3.1.3.2.5 Units of measure
      - 3.1.3.2.6 Relationship to other inputs/outputs
      - 3.1.3.2.7 Data formats
      - 3.1.3.2.8 End messages
  - 3.1.4 Communication interface
- 3.2 Functional requirements
  - 3.2.1 Information flows
    - 3.2.1.1 Data flow diagram 1
      - 3.2.1.1.1 Data entities
      - 3.2.1.1.2 Pertinent processes
      - 3.2.1.1.3 Topology
    - 3.2.1.2 Data flow diagram 2
      - 3.2.1.2.1 Data entities
      - 3.2.1.2.2 Pertinent processes
      - 3.2.1.2.3 Topology
  - 3.2.2 Process descriptions
    - 3.2.2.1 Process 1
      - 3.2.2.1.1 Input data entities
      - 3.2.2.1.2 Algorithm or formula or process
      - 3.2.2.1.3 Affected data entities
    - 3.2.2.2 Process 2
      - 3.2.2.2.1 Input data entities
      - 3.2.2.2.2 Algorithm or formula or process
      - 3.2.2.2.3 Affected data entities
  - 3.2.3 Data construct specifications
    - 3.2.3.1 Construct 1
      - 3.2.3.1.1 Record type
      - 3.2.3.1.2 Constituent fields
    - 3.2.3.2 Construct 2
      - 3.2.3.2.1 Record type
      - 3.2.3.2.2 Constituent fields

If a given heading is not applicable, the entry should be N/A (not applicable).

For further information see section 5.3 of the IEEE-830-1998 standard.