Design - Structure Diagram

Structure Diagrams

Structure diagrams are a visual representation of the steps needed to solve a problem.

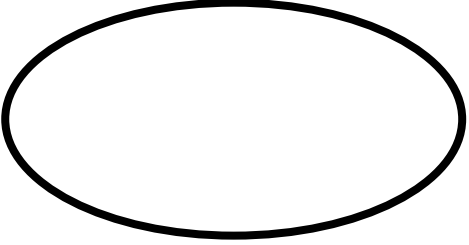Structure diagrams are read from the top down, from left to right.

Structure Diagram Symbols

The following symbols are used in structure diagrams:

Symbol	Name	Use
	Process	Used to show that a process is needed (such as user input, a calculation or displaying information)
	Pre-Defined Function	Used to show that a pre-defined function will be used (such as random, round or length) instead of a developer writing the process themselves.

Structure Diagram Symbols
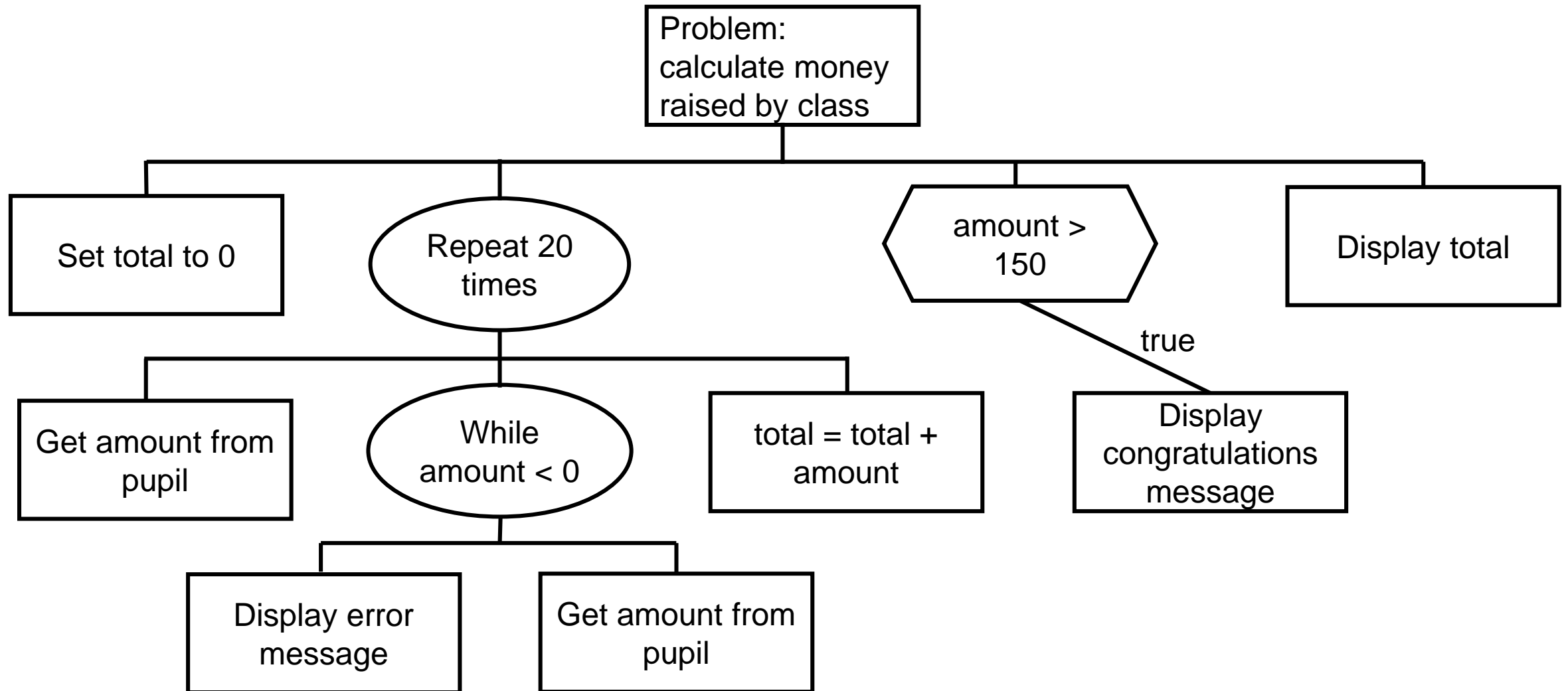
The following symbols are used in structure diagrams:

Symbol	Name	Use
(ellipse)	Loop	Used to show that code should be repeated. This is used for both fixed and conditional loops
(hexagon)	Selection	Used to show that the program needs to decide which path to follow i.e. different code should be executed for different scenarios

Structure Diagram Example

Program Purpose:

A class of 20 pupils is raising money for charity. For each pupil, the program will ask how much money they raised, validate that it is a value larger than 0, and then add the amount to the total. When there are no pupils left, the program should decide if the class has won a prize by raising more than £150, displaying a congratulations message if they have. The program will then display the total amount raised.

Structure Diagram Example

Problem: calculate money raised by class

Set total to 0

Repeat 20 times

amount > 150

Display total

Get amount from pupil

While amount < 0

total = total + amount

true

Display congratulations message

Display error message

Get amount from pupil

Pre-Defined Functions in Structure Diagrams

Round score to 2
decimal places

Get length of
firstName

Set bonusBall to a
Random number
between 1 and 59