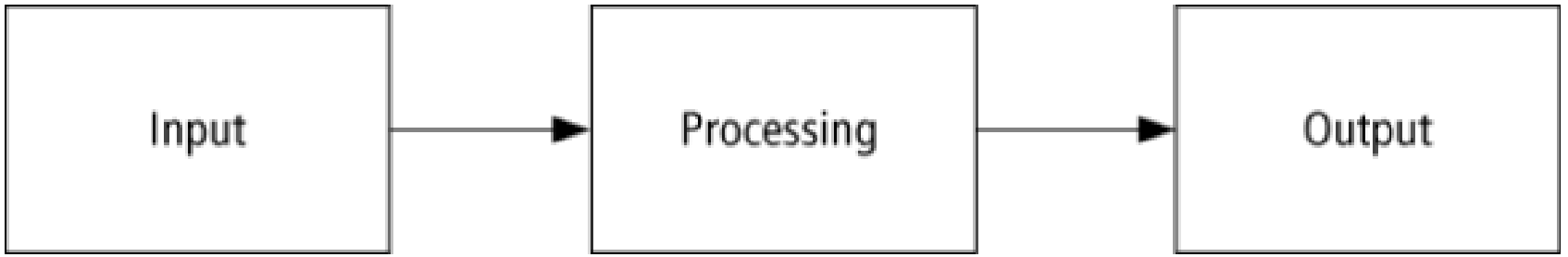
Program Development

- Software refers to a **collection of instructions** for the computer
- The computer only knows how to do **what the programmer tells** it to do
- Therefore, the programmer has to know how to solve problems
- Equals to performing a task on the computer!

Performing a Task on the Computer

- Determine Output
- Identify Input
- Determine process necessary to turn given Input into desired Output



Example

How fast is a car traveling if it goes 50 miles in 2 hours?

1. Output:

a number giving the speed in miles per hour

2. Input:

the distance and time the car has traveled

3. Process:

speed = distance / time

Program development cycle

1. ***Analyze:*** Define the problem.
2. ***Design:*** Plan the solution to the problem.
3. ***Choose the interface:*** Select the objects (text boxes, buttons, etc.).

Program development cycle continued

4. ***Code:*** Translate the algorithm into a programming language.
5. ***Test and debug:*** Locate and remove any errors in the program.
6. ***Complete the documentation:*** Organize all the materials that describe the program.

Program Planning

- Always have a plan before trying to write a program
- The more complicated the problem, the more complex the plan must be
- Planning and testing before coding saves time coding

Program Planning Example

- A recipe

- Ingredients and amounts are determined by what you want to bake
- Ingredients are **input**
- The way you combine them is the **processing**
- What is baked is the **output**