1.2 An **algorithm** is a step by step list of instructions that if followed exactly will solve the problem under consideration

1.3. The Python Programming Language- Python is an example of a **high-level language**; other high-level languages you might have heard of are C++, PHP, and Java. **low-level languages**, sometimes referred to as machine languages or assembly languages. Loosely speaking, computers can only execute programs written in low-level languages.

Two kinds of programs process high-level languages into low-level languages: **interpreters** and **compilers**. An interpreter reads a high-level program and executes it. A compiler reads the program and translates it completely before the program starts running. In this case, the high-level program is called the **source code**, and the translated program is called the **object code** or the **executable**.

1.4. Special Ways to Execute Python in this Book- you can also execute Python code with the assistance of a unique visualization tool. This tool, known as **codelens**, allows you to control the step by step execution of a program. It also lets you see the values of all variables as they are created and modified. In activecode, the source code executes from beginning to end and you can see the final result. In codelens you can see and control the step by step progress. First, you can write, modify, and execute programs using a unique **activecode** interpreter that allows you to execute Python code right in the text itself (right from the web browser)

1.5. More About Programs- **input-**Get data from the keyboard, a file, or some other device.

**Output-**Display data on the screen or send data to a file or other device.

**math and logic-**Perform basic mathematical operations like addition and multiplication and logical operations like and, or, and not.

**conditional execution-**Check for certain conditions and execute the appropriate sequence of statements.

**Repetition-**Perform some action repeatedly, usually with some variation.

**For loop and for while**

1.6. Formal and Natural Languages- **Natural languages** are the languages that people speak, such as English, Spanish, Korean, and Mandarin Chinese. They were not designed by people (although people try to impose some order on them); they evolved naturally. **Formal languages** are languages that are designed by people for specific applications.

syntax rules come in two flavors, pertaining to **tokens** and structure. Tokens are the basic elements of the language, such as words, numbers, and chemical elements. **structure** of a statement— that is, the way the tokens are arranged.

**In python everything is an object**

**QUESTION- clarification on hard-coding**

**Ch5 turtle** that can be used to draw pictures.