Chapter seven

Classes and objects

Part I

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class

- **A class: is a special construct that holds both data and methods.**
- **There are two aspects to a class:**
  - **the data that it holds.**
  - **the tasks it can perform.**
- **Data that a class holds are referred to as the *attributes*.**
- **The tasks that a class can perform are referred to as the *methods*.**

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Object

- In order to use the methods of a class you need to create an *object* of the class.
- A class looks like as a blueprint, or template, from which objects are generated.
- An object refers to an individual instance of that class.
- In one program we may have many classes.
- Also we can generate many kinds of objects.

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Rectangle class

- **Declaring an object:**
  - ***Rectangle myRectangle;***
- **That line means creating a variable that holds a reference to a an object, rather than the object itself (a name for a location in memory)**
- **The process of creating an object is referred to as instantiation.**
- **In order to create an object we use a very special method of the class called a *constructor*.**

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The constructor

- **The constructor is a method that always has the same name as the class.**
- **When you create a new object this special method is always called.**
  - ***myRectangle=new Rectangle(7.5, 12.5);***
- **Function of the constructor is to reserve some space in the compute's memory just big enough to hold the required object (*in our case an object of the Rectangle class*).**

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Declaring and creating an object of a class

1. ***Rectangle myRectangle;***
   myRectangle=new Rectangle(7.5, 12.5);
2. ***Rectangle myRectangle=new Rectangle(7.5, 12.5);***

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The constructor

```
public Rectangle(double lengthIn, double heightIn)
  {
    length=lengthIn;
    height=heightIn;
  }
```

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