Learning Goals

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This session will help the audience to understand the following,

- What are objects?
- Objects characteristics.
- Difference between classes & objects.

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What is OOPS?

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OOPS stands for Object Oriented Programming System.

Java, Python , C# , Typescript and Java script.

In OOPS programming paradigm the developers build applications by breaking programs into smaller chunks call objects.

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Advantages Of OOPS

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- Easy to maintain as objects are self contained, cohesive units developed for specific functionalities.
  - **Example:** Calculator software object is a cohesive unit which does all mathematical functions.
- Improves reusability.
  - **Example:** Calculator software object can be reused in a retail ECOM application or used in a banking application.
- Improves system flexibility to changes.
  - **Example:** Calculator software object function logic can be easily changed. Assume one wants to change the addition logic they can easily change the add function alone in the calculator object.

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OOPS Primer

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OOPS Primer

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Define Noun

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A ***noun*** is any word that describes a person, place, or a thing.

Example: The boy rode a Cycle.

Nouns : boy, cycle.

Noun

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Define Adjective

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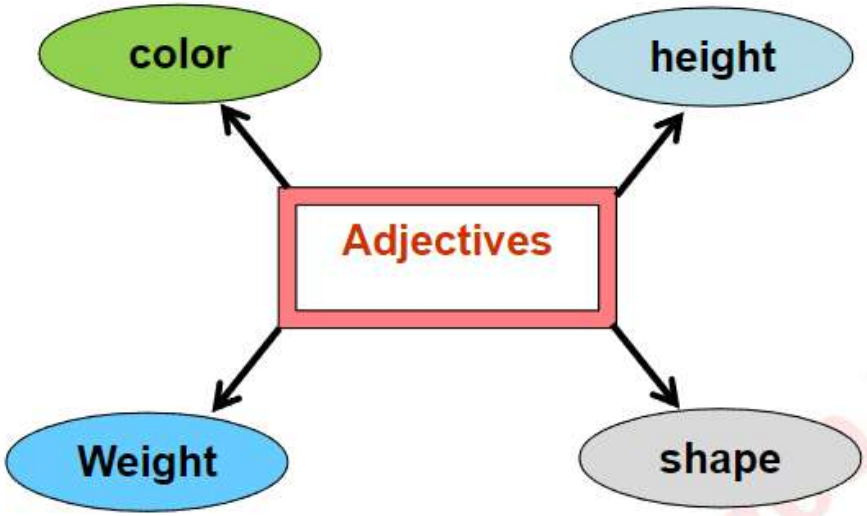
Adjectives are describing words.

Example: The boy is riding a green cycle.

Adjective: Green.



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Define a verb

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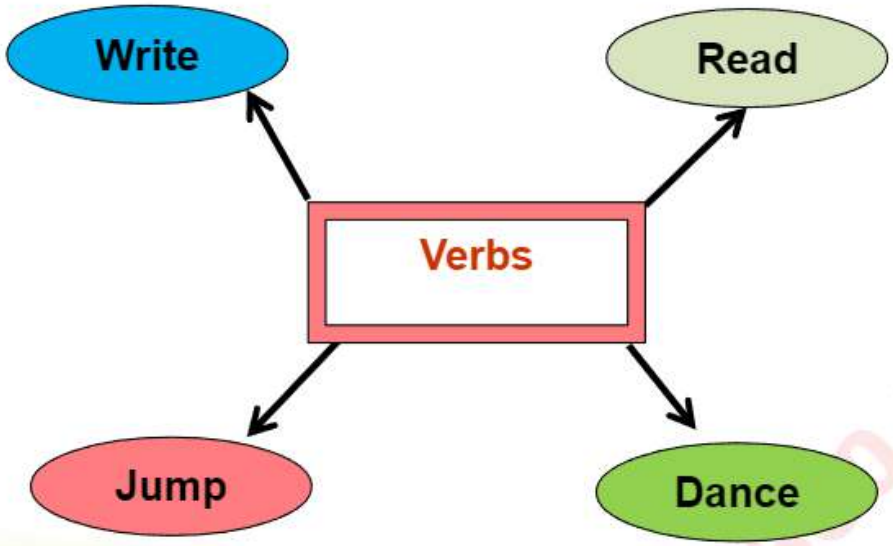
A ***verb*** refers to an action.

Example: The boy rode a green cycle.

Verb: Rode



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Software world - Noun

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A ***noun*** in real world translates to a ***object*** in software world.

Each object has a two characteristics,

- ***State*** – State represents ***adjectives***.
- ***Behavior*** – Represents the actions (***verbs***)

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Learn by an example

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Let us take a laptop to understand it,

- **Object (Noun) - Laptop**
  - **State (Adjective) –** The **power status** (ON/Off) of computer, **operation status** (hibernate/sleep), **Disk size** etc.
  - **Behavior (Verb) – Switch on, Switch off, hibernate, save file**. All these changes the state of the object computer. For instance save file reduces the disk size.

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What constitutes a software application? Click to continue

Software applications is a collection of **software objects** which orchestrate among themselves to achieve a desired functionality.

For example: A retail store system having Product and Product Catalog objects.

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A Software Example

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Lets take a retail application where user can,

- Search product by name
- Check Product Price

The system will be represented with a "*Product*" object.

Product:

Operations (Behaviours)	Fields (States)
Search Product by name	Product Name
Check Product price	Product price

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So what is a Class then...

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- A ***class*** is the blueprint which defines the objects state and behavior
- A class is used to create objects

Smiley Chocolate Mould

Smiley chocolates manufactured

Smiley Chocolates

Mould: Class
Chocolates: Objects

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