



Shri Yashwantrao Bhonsale Education Society's  
**YASHWANTRAO BHONSALE INSTITUTE OF TECHNOLOGY**

(DTE CODE : 3470) (MSBTE Code : 1742)

Approved by AICTE, DTE & Affiliated to Mumbai University & MSBTE Mumbai  
(NBA Accredited ME, CE, EE Diploma Programs)

## **Practical No 7**

### **Aim**

Write a Python program to create, update, and manipulate a dictionary of student records, including their grades and attendance..

### **Apparatus / Software Required**

- Python Interpreter (Python 3.14.2)

### **Theory**

#### **1. Introduction to Dictionary**

- A dictionary in Python is a built-in data structure used to store data in key–value pairs.
- Each key uniquely identifies a record, and each value stores related information.
- Dictionaries are represented using curly braces {} with a colon : between key and value.

#### **2. Use of Dictionary in Student Record Management**

- Dictionaries are suitable for managing student records because:
  - Each student has a unique roll number (key)
  - Student details like grade and attendance are stored as values
- This structure allows fast access, easy updates, and safe deletion of records.

#### **3. Structure of Student Dictionary**

- **Key** → Roll Number (unique, immutable)
- **Value** → Student information (Grade, Attendance)
- Keys cannot be duplicated, ensuring data integrity.

#### **4. Properties of Dictionary**

- Dictionaries are ordered (Python 3.7 onwards)
- Dictionaries are mutable
- Keys must be unique and immutable
- Values can be of any data type
- Indexing is not supported



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## **5. Dictionary Functions Used in Practical**

### **5.1 Inserting New Student Records**

#### a) Using Assignment (**dict[key] = value**)

- Used to insert a new student record
- If the key already exists, it updates the value

#### b) **update()**

- Used to insert or update multiple records at once
- Accepts another dictionary or key-value pairs

### **5.2 Accessing Student Records**

#### a) Using Key

- Used to access a specific student's data
- Fast and direct retrieval

#### b) **get()**

- Used to retrieve value safely
- Prevents program error if key is not present

### **5.3 Updating Student Records**

- Updating is done by assigning a new value to an existing key
- Can update:
  - Grade
  - Attendance
- **Ensures real-time record modification.**

### **5.4 Deleting Student Records**

#### a) **pop()**

- Removes a specific student record using key
- Commonly used in practical applications



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b) **del** keyword

- Deletes a student record directly
- Used when key existence is confirmed

c) **clear()**

- Removes all student records
- Used when resetting the database

### 5.5 Viewing Dictionary Data

a) **keys()**

- Returns all roll numbers

b) **values()**

- Returns all student details

c) **items()**

- Returns roll number and details together
- Useful for displaying complete records

### 5.6 Counting Student Records

**len()**

- Returns total number of students in dictionary
- Useful for attendance and record count

## 6. Advantages of Dictionary in Practical

- Fast access using keys
- Easy insertion and deletion
- Well-structured data storage
- Ideal for real-world record management





