

# INPUT AND OUTPUT (I/O) OPERATIONS IN PYTHON

## READING INPUT

### Reading a String:

- Description: Use the input() function to the input from the user.
- Example:

```
1 name = input("Enter your name: ")
```

- Explanation:
  - Variable Declaration - name : This is a variable that is used to store data. In this case, it will store the name entered by the user.
  - input() Function - input("Enter your name: "): This function takes a prompt (in this case, the string "Enter your name: ") as an argument and displays it to the user in the console. It then waits for the user to input some data. In this case, the user is expected to input their name.
  - User Input : The program pauses and waits for the user to input their name, and press Enter.
  - Variable Assignment : The value entered by the user is assigned to the variable name. So, if the user types "Alf", the variable name will now hold the string "Alf".

### Reading a Character:

- Description: Reading a character (first character of the entered string).
- Example:

```
1 middle_initial = input("Enter your middle name: ")[0]
```

- Explanation:
  - Variable Declaration - middle\_initial : This is a variable used to store the middle initial entered by the user.
  - input() Function - input("Enter your middle name: "): Similar to the previous example, this function prompts the user to enter their middle name. The provided string "Enter your middle name: " serves as the prompt.
  - User Input : The program pauses and waits for the user to input their middle name, and press Enter.
  - Indexing - [0] : After receiving the user input, this code immediately retrieves the first character of the entered middle name. The [0] index is used to access the first character of the string.

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- Variable Assignment : The first character of the entered middle name is assigned to the variable `middle_initial`.

## Reading an Integer:

- Description: Use `int()` to convert the input to an integer.
- Example:

```
1 age = int(input("Enter your age: "))
```

- Explanation:
  - Variable Declaration - `age` : This is a variable used to store the age entered by the user.
  - `input()` Function - `input("Enter your age: ")`: Similar to the previous example, this function prompts the user to enter their age. The provided string "Enter your age: " serves as the prompt.
  - User Input : The program pauses and waits for the user to input their age, and press Enter.
  - Type Conversion - `int(...)` : The input received from the user is initially a string. To use it as an integer, the `int()` function is applied to convert the entered value to an integer. This ensures that the variable `age` holds a numeric value.
  - Variable Assignment : The converted integer value is assigned to the variable `age`.

## Reading a Float:

- Description: Use `float()` to convert the input to a float.
- Example:

```
1 height = float(input("Enter your height in meters: "))
```

- Explanation:
  - Variable Declaration - `height` : This is a variable used to store the height entered by the user.
  - `input()` Function - `input("Enter your height in meters: ")`: Similar to the previous example, this function prompts the user to enter their height in meters. The provided string "Enter your height in meters: " serves as the prompt.
  - User Input : The program pauses and waits for the user to input their height in meters, and press Enter.
  - Type Conversion - `float(...)` : The input received from the user is initially a string. To use it as a floating-point number (decimal), the `float()` function is applied

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to convert the entered value to a floating-point number. This ensures that the variable height holds numeric value.

- Variable Assignment : The converted floating-point number is assigned to the variable height.

## Reading a Boolean:

- Description: Reading a boolean (using lower() to handle case-insensitive input) and check if the lowercase user input is equal to the given condition.
- Example:

```
1 is_cloudArchitect = input("Are you a member of the AWS Cloud Club - Department of Cloud Computing? (yes/no): ").lower() == "yes"
```

- Explanation:
  - Variable Declaration - is\_cloudArchitect : This is a variable used to store a boolean value. It will indicate whether the user is a member of Department of Cloud Computing in AWS Cloud Club.
  - input() Function - input("Are you a member of the AWS Cloud Club - Department of Cloud Computing? (yes/no): "). This function takes a prompt (in this case, the string asking about club membership) as an argument and displays it to the user in the console. It then waits for the user to input some data. In this case, the user is expected to input "yes" or "no."
  - User Input : The program pauses and waits for the user to input their membership status in AWS Cloud Club, and press Enter.
  - .lower() Method : The .lower() method is applied to the user's input. This method converts any uppercase characters in the string to lowercase. This ensures that the comparison is case-sensitive.
  - Comparison and Boolean Assignment - == "yes" : The lowercased user input is compared to the string "yes". If the input is "yes", the comparison evaluates to True; otherwise, it evaluates to False. The result of this comparison is then assigned to the variable is\_cloudArchitect.

