

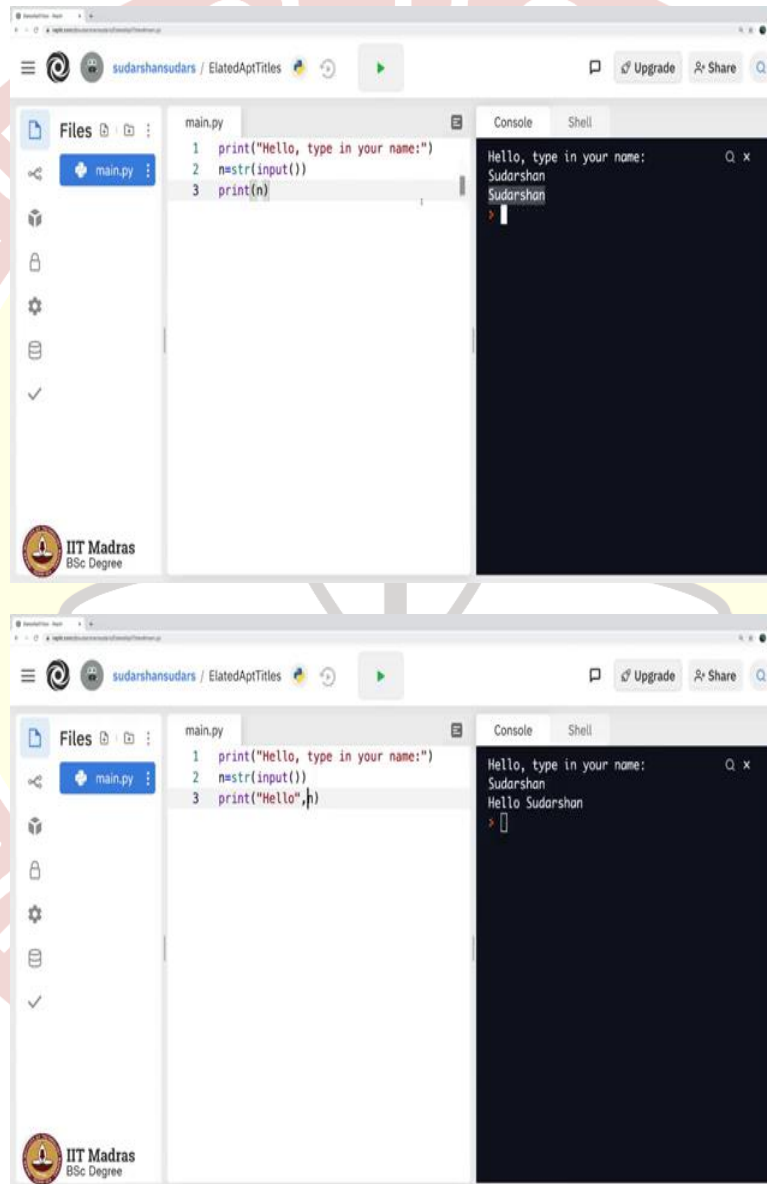


# IIT Madras

ONLINE DEGREE

**Programming in Python**  
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**Variables and Input Statement**

(Refer Slide Time: 0:16)



The image displays two screenshots of a Python IDE interface, likely JupyterLab, showing a program that takes user input and prints it twice. The interface includes a file explorer on the left, a code editor in the center, and a console on the right. The code in the editor is as follows:

```
main.py
1 print("Hello, type in your name:")
2 n = input()
3 print(n)
```

The console output shows the program's execution:

```
Hello, type in your name:
Sudarshan
Sudarshan
```

The second screenshot shows the same code with a slight modification to the third line, where a comma is added to the print statement:

```
main.py
1 print("Hello, type in your name:")
2 n = input()
3 print("Hello", n)
```

The console output for the second screenshot shows:

```
Hello, type in your name:
Sudarshan
Hello Sudarshan
```

The screenshot shows a Jupyter Notebook interface with a file explorer on the left containing 'main.py'. The main editor displays the following Python code:

```
1 print("Hello, type in your name:")
2 n=str(input())
3 print("Hello",n,"how are you?")
```

The console on the right shows the execution output:

```
Hello, type in your name:
Sudarshan
Hello Sudarshan how are you?
> |
```

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The screenshot shows a Jupyter Notebook interface with a file explorer on the left containing 'main.py'. The main editor displays the following Python code:

```
1 print("Hello, type in your name:")
2 n=str(input())
3 print("Which place are you in?")
4 n=str(input())
```

The console on the right shows the execution output:

```
Hello, type in your name:
Sudarshan
Which place are you in?
Mysore
> |
```

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The screenshot shows a Jupyter Notebook interface with a file explorer on the left containing 'main.py'. The main editor displays the following Python code:

```
1 print("Hello, type in your name:")
2 n=str(input())
3 print("Which place are you in?")
4 n=str(input())
5 print("Hello",n,"How is the weather
  in",p)
6 |
```

The console on the right shows the execution output, including a traceback and an error message:

```
Hello, type in your name:
Sudarshan
Which place are you in?
Mysore
Traceback (most recent call last):
  File "main.py", line 5, in <module>
    print("Hello",n,"How is the weather in",p)
    ^
NameError: name 'p' is not defined
> |
```

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Try observing this program. I say print 'hello, type in your name'. Remember in the previous case I said 'type a number', 'enter a number' and now I am saying 'type in your name'. What exactly was the previous code? I said 'n equals int input and so on. That was because it was a number. We told the computer that the number that is being input the, whatever the user is trying to input it is actually an integer.

If you were to type in your name it will be a string. So, you should put 'str' and then input and then go to the next line, this may sound a little confusing, I must warn you, but do not worry as we keep using it more and more, it will get very, you will get very used to it. And then I will say 'print n' and so let us execute this and see what happens.

Hello, type in your name, Sudarshan and then you see the first one was what I typed, second one was what it displayed because of the print statement here. I can go ahead and say 'hello comma n, to execute this type Sudarshan, it says 'hello Sudharshan'. You can of course, continue and say and it will indeed say, 'hello, how are you?'

Look at this Sudarshan, 'hello Sudarshan how are you?' Wonderful! So, you are slowly getting a hang of what is programming and how we can, so what is unique about this program? What is unique about this program is that whatever you enter, it says hello to that string that is being entered. And I am trying to make it really interactive although this may sound really dumb, what is so special about a program saying, hello Sudarshan how are you.

But then you can think of the complexities that one can add to this. I will just try to include just one complexity to this. I will say, type in your name, and take a string, then you say 'which place are you in?' delete this, which means I am supposed to enter the place here, it will again be the same p equals str input.

Please note, why did I say p? I say p here because you have n here, which stands for your name, if you put n here assume you put n here, then the name that you typed in which gets stored in n, will be lost, because this is the bucket, in which you stored your name and then your place also is being stored there. You probably are wondering why cannot it store both?

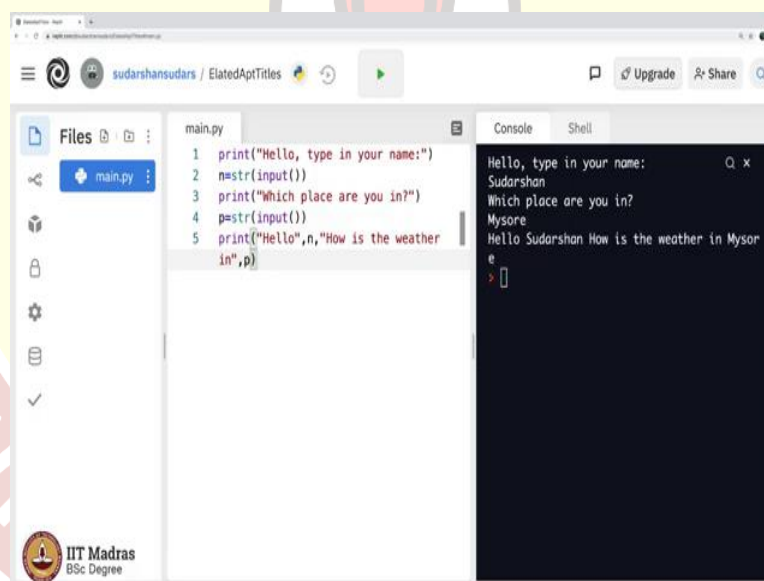
That is not how the computer reads it. So, without any further explanation, let us see what exactly this does? Hello type in your name, Sudarshan, which place are you in? I am now in Mysore. It does not display anything simply because I have not displayed anything here. So,

look at what I would want this program to tell me, it should say 'hello, name, and then how is the weather in p?'

I make it one level more interactive here if you compare this with the previous code. Let me execute it, it says, 'hello, type in your name'. I say Sudarshan, it says, which place are you in, I say Mysore, there seems to be a problem somewhere. Let us figure out what is the problem? p is not defined, you see I made a mistake here, n should be p, without declaring something if you simply use it this is the kind of error that you will encounter.

In fact, we have not edited any of these errors that we get while we are coding that is because the mistakes that we make you may also make, so we do not want to appear very perfect, so any mistake that happens here will be corrected here and the video will not be edited, you will be seeing why the error came and you will be careful enough to reverse the error in case you encounter a similar error.

(Refer Slide Time: 4:49)



The screenshot shows a Jupyter Notebook interface. On the left, a file browser shows 'main.py'. The main editor displays the following Python code:

```
1 print("Hello, type in your name:")
2 n = input()
3 print("Which place are you in?")
4 p = input()
5 print("Hello", n, "How is the weather in", p)
```

On the right, the 'Console' tab shows the program's execution output:

```
Hello, type in your name:
Sudarshan
Which place are you in?
Mysore
Hello Sudarshan How is the weather in Mysore
```

Below the console output, a red error message is visible: 'NameError: name 'p' is not defined'. The IIT Madras logo is visible in the bottom left corner of the interface.

Browser window showing a Jupyter Notebook interface. The URL bar shows "sudarshansudars / ElatedAptTitles". The interface includes a "Files" sidebar, a code editor, and a "Console" output area.

**Files:** main.py

**main.py:**

```
1 print("Hello, type in your name:")
2 n=str(input())
3 print("Which place are you in?")
4 p=str(input())
5 print("Hello",n,"How is the weather
  in",p)
```

**Console:**

```
Hello, type in your name:
Amitabh
Which place are you in?
Mumbai
Hello Amitabh How is the weather in Mumbai
```

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Browser window showing a Jupyter Notebook interface. The URL bar shows "sudarshansudars / ElatedAptTitles". The interface includes a "Files" sidebar, a code editor, and a "Console" output area.

**Files:** main.py

**main.py:**

```
1 print("Hello, type in your name:")
2 n=str(input())
3 print("Which place are you in?")
4 p=str(input())
5 print("Hello",n,"How is the weather
  in",p,"?")
```

**Console:**

```
Hello, type in your name:
PM
Which place are you in?
NewDelhi
Hello PM How is the weather in NewDelhi ?
```

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Browser window showing a Jupyter Notebook interface. The URL bar shows "sudarshansudars / ElatedAptTitles". The interface includes a "Files" sidebar, a code editor, and a "Console" output area.

**Files:** main.py

**main.py:**

```
1 print("Hello, type in your name:")
2 n=str(input())
3 print("Which place are you in?")
4 p=str(input())
5 print("Hello",n,"How is the weather
  in",p,"?")
6 print("What is your age?")
7 age=int(input())
8 print("Good to know you are",age,
  "years old")
```

**Console:**

```
Hello, type in your name:
Sudarshan
Which place are you in?
Mysore
Hello Sudarshan How is the weather in Mysore ?
What is your age?
15
Good to know you are 15 years old
```

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Now let us go ahead redo this, Sudarshan is my name, what place are you in, Mysore, it says Hello Sudarshan, how is the weather in Mysore? Perfect, very nice! Now, if I were to rerun this program and instead of my name I type Amitabh, as an Amitabh Bachchan, which place is Amitabh right now? I am hoping he is not, given the Covid situation he probably is at home. So, let me type what am I typing, let me type Mumbai.

Hello Amitabh, how is the weather in Mumbai. So, it is not grammatically correct, how is the weather in p, I should probably put a question mark after this, so hello, type in your name, I am the, let us say it is the Prime Minister of India. Which place are you in? New Delhi. Hello, PM, how is the weather in New Delhi?

So, you can make it even more complex here. You can make it display the right way, you see there is a small problem here, there is a space in between New Delhi and question mark, you probably are wondering how to remove that space, you can think of using something called format specifier, which is coming next. But I am just giving it as a puzzle try to look up online how this can be removed and then try to remove it.

Most of these things are available on Google, just type it and you will have a question on some forum, which addresses exactly this question and you get an answer as well. That is with variables, we will go ahead and study more variables right now. You understood that n was a string, p was a string, I will go ahead and say what is your age? You see this will be an integer. Let me say age equals integer input.

We execute this. Hello, type in your name, Sudarshan, how is the weather in, which place are you in, Mysore, hello, how is the weather in Mysore, by the way what is your age? I will say my age is 90. That is it. It is not saying anything. So, I will say 'good to know you are, age, years old. So, you can guess what is going to happen now.

Sudarshan, which place are you in, Mysore, what is your age, let me call myself a teenager and feel good about it, I say 15. Good to know you are 15 years old, says the computer. Point to note here, you can use print statement and include variables there instead of telling you what exactly is variables, explaining it in detail, I simply used it in a program and made you feel comfortable about how variables are being used.

Not only did I use the variable here, I used the variable and assigned a value to it by using a, I mean, making use of the input statement, whenever you say input, it will ask for the input, it



will convert that to, the type that you have specified, int type and then assign that to the variable.

