BTech Smart Class

Welcome

Advanced Python Programming

course

Course Contents

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Sequence types in Python

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What is sequence type?

A sequence type is type that holds a sequence of elements.

Sequence types in Python

- **List** - Sequence of elements enclosed in square brackets : [ ]
- **Tuple** - Sequence of elements enclosed in parenthesis : ( )
- **Set** - Sequence of elements enclosed in curly braces : { }
- **Dictionary** - Sequence of elements enclosed in curly braces : { } : each element is a pair
- **String** - Sequence of characters, digits, or any symbols enclosed in quotes : " " | ' '

Elements of a sequence are separated by using comma and elements may of different data type

Sequence types in Python

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What is sequence type?

A sequence type is type that holds a sequence of elements.

Sequence types in Python

Mutab

List
Dictionary
Set

Immutab

Tuple
String

Introduction to list in Python

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What is list?

A list is a collection of indexed elements of different data types.

Properties of list in Python

List in python has implemented using a built-in class **list**

List is represented using square brackets **[ ]**

Every element in a list separated with comma (,) symbol

All list elements are **indexed** and the index starts with **'0'**

The list elements are also indexed with negative numbers from the last element to
the first element in the list, and it begins with -1 for each element decreased by 1.

List and its Elements

Mutable

Introduction to list in Python

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What is list?

A list is a collection of indexed elements of different data types.

How to create a list?

```
listName = [value1, value2, value3, ...]
```

Introduction to list in Python

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What is list?

A list is a collection of indexed elements of different data types.

How to access individual elements of a list?

listName[index]

Introduction to list in Python

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What is list?

A list is a collection of indexed elements of different data types.

How to access sub list from a list?

Slicing

listName[startIndex : endIndex]

listName[startIndex : endIndex : indexAddition]

Introduction to list in Python

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What is list?

A list is a collection of indexed elements of different data types.

Built-in methods of list

append(value)
insert(index, value)
extend(list)

remove(value)
pop()
pop(index)
clear()
del

len(list)
count(value)
sort()
reverse()
max(list)
min(list)
index(value)

Tuple in Python

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What is tuple?

A tuple is a collection of indexed elements of different data types.

Properties of tuple in Python

Tuple in python has implemented using a built-in class **tuple**

Tuple is represented using Parenthesis **( )**

Every element in a tuple separated with comma (,) symbol

All tuple elements are **indexed** and the index starts with **'0'**

Tuple elements are **Immutable**

The Tuple elements are also indexed with negative numbers from the last element to the first element in the tuple, and it begins with -1 for each element decreased by 1.

Tuple in Python

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What is tuple?

A tuple is a collection of indexed elements of different data types.

How to create a tuple?

```
tupleName = (value1, value2, value3, ...)
```

Tuple in Python

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What is tuple?

A tuple is a collection of indexed elements of different data types.

How to access individual elements of a tuple?

```
tupleName[index]
```

Tuple in Python

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What is tuple?

A tuple is a collection of indexed elements of different data types.

How to access sub tuple from a tuple?

Slicing

```
tupleName[startIndex : endIndex]
tupleName[startIndex : endIndex : indexAddition]
```

Tuple in Python

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What is tuple?

A tuple is a collection of indexed elements of different data types.

Built-in methods of tuple

del

len(tuple)

count(value)

sorted(tuple, reverse=)

max(list)

min(list)

index(value)

Set in Python

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What is set?

A set is a collection of un-ordered and un-indexed elements of different data types.

Properties of set in Python

Set in python has implemented using a built-in class **set**

Set is represented using curly braces { }

Every element in a set separated with comma (,) symbol

Set elements are

Immutable

Set in Python

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What is set?

A set is a collection of un-ordered and un-indexed elements of different data types.

How to create a set?

```
setName = {value1, value2, value3, ...}
```

Set in Python

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What is set?

A set is a collection of un-ordered and un-indexed elements of different data types.

How to access individual elements of a set?

NOT ALLOWED

Set in Python

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What is set?

A set is a collection of un-ordered and un-indexed elements of different data types.

How to access sub set from a set?

Slicing

NOT ALLOWED

Set in Python

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What is set?

A set is a collection of un-ordered and un-indexed elements of different data types.

Built-in methods of set

- add(value)
- append(list_of_values)
- discard(value)
- remove(value)
- pop()
- clear()
- del
- len(set)
- sorted(set, reverse=)
- max(set)
- min(set)

Set in Python

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What is set?

A set is a collection of un-ordered and un-indexed elements of different data types.

Special operations on set

Union	Intersection	Difference	Symmetric Difference
union(set)	intersection(set)	difference(set)	symmetric_difference(set)
|	&	-	^

Dictionary in Python

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What is dictionary?

A dictionary is a collection of un-ordered elements where each element is a pair of **key** and **value**.

Element in dict

key: value

Dictionary and it's elements are

Mutable

Dictionary in Python

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Properties of dictionary in Python

Dictionary in python has implemented using a built-in class **dict**

Dictionary is represented using curly braces { }

Every element in a dictionary separated with comma (,) symbol

Every element in a dictionary is a pair of key and value

The key and the corresponding value are separated with : symbol →

key: value

Dictionary doesn't allow duplicate keys, but value does not have any restriction

Key must be either a string or a number or any immutable object and value can be any object

Dictionary in Python

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How to create a dictionary?

```
dictName = {key1:value1, key2: value2,
            key3:value3, ...}
```

How to access individual elements of a dictionary?

```
dictName[key]
```

Dictionary in Python

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How to access sub set from a dictionary?

Slici
ng

NOT ALLOWED

Dictionary in Python

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Built-in methods of dictionary

get(key)	Pop(key)	len(dictionary)
items( )	popitem( )	update({key: value})
keys( )	clear( )	
values( )	del	

String in Python

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What is string?

A string is a sequence of characters enclosed in quotes

"Hell o"

""""Python""""

'Rank 1'

"It's simple"

String in Python

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Properties of string in Python

String in python has implemented using a built-in class **str**

String is represented using quotes

“ | ‘ ’

String may contain any character like alphabets, digits, special symbols

String elements are immutable

All string elements are **indexed** and the index starts with **‘0’**

The string elements are also indexed with negative numbers from the last element to the first element in the string, and it begins with -1 for each element decreased by 1.

String in Python

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How to create a string?

```
strName = 'value'
```

How to access individual elements of a string?

```
strName[index]
```

String in Python

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How to access sub string from a string?

Slicing

```
strName[start : end]
strName[start : end : modifier]
```

Understanding Slicing in Python

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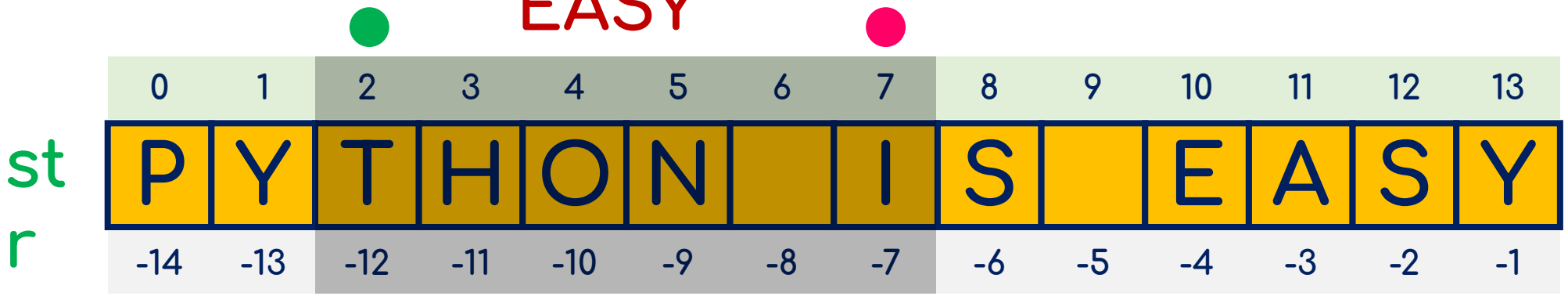
str = “PYTHON IS EASY”



str[2 : 8]

THO

Understanding Slicing in Python

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str = “PYTHON IS EASY”

str[-11 : -5]

HON

Understanding Slicing in Python

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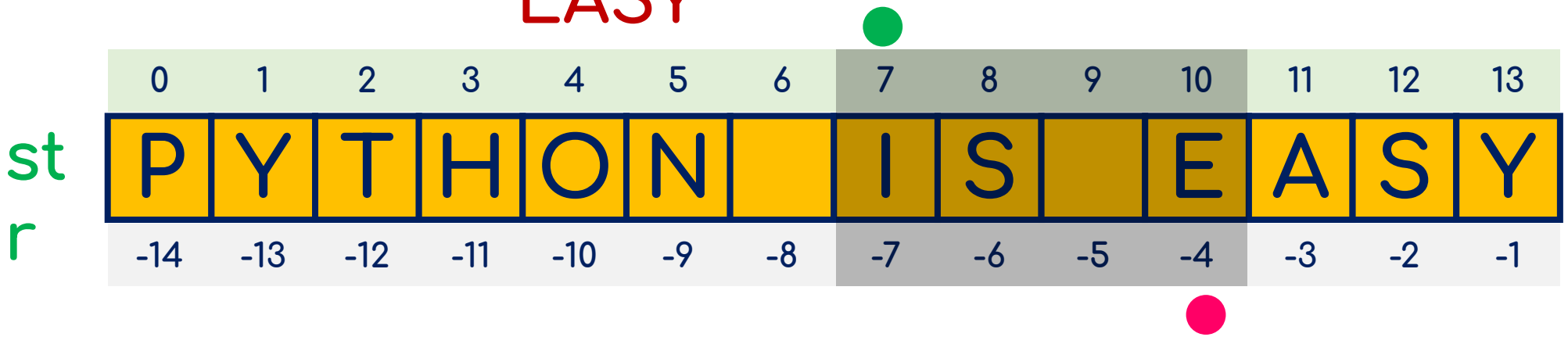
str = “PYTHON IS EASY”



str[7 : -3]

IS

Understanding Slicing in Python

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str = “PYTHON IS EASY”

str[2 : 9 : 1]

THON

Understanding Slicing in Python

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str = “PYTHON IS EASY”

str[8 : 1 : -1]

Sl

Understanding Slicing in Python

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str = “PYTHON IS EASY”

str[2 : 9 : 2]

TO

Understanding Slicing in Python

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str = “PYTHON IS EASY”

str[8 : 1 : -2]

S

String in Python

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Built-in methods of String

capitalize()

center(width, fill_char)

startswith(str, begindex, endindex)

endswith(str, begindex, endindex)

find(str, begindex, endindex)

isdigit()

isnumeric()

isspace()

isalpha()

isdecimal()

isalnum()

lower()

upper()

split('separator', maxsplit)

max(str)

min(str)