

DICTIONARIES

Retake of the second test

Probable time is Friday, November 29, at 14:15.

Dictionaries

Dictionary is a set of key-value pairs.

```
dict = {  
    key1: value1,  
    key2: value2,  
    key3: value3,  
    ...  
}  
  
dim = {  
    'length': 100,  
    'width': 50,  
    'height': 20  
}
```

Adding values

Values can be added using the same syntax as is used for lists.

dict[key] = value `dim['depth'] = 15`

Existing values can be changed:

dict[key] = newvalue `dim['depth'] = 25`

`dim['depth'] -= 10`

Querying values

Values can be queried in a similar way as the values of elements in a list.

```
>>> dict[key1]  
value1
```

```
>>> dim['length']  
100
```

```
>>> dict[key2]  
value2
```

```
>>> dim['depth']  
15
```

Checking if a key exists in a dictionary

`if key in dict:`
 statements

```
if 'width' in dim:  
    print(dim['width'])  
else:  
    print('Not found')
```

Looping over all keys in a dictionary

```
for key in dict:  
    statements
```

```
for key in dim:  
    print('Key name', key)  
    print('Key value is',  
          dim[key])
```

Dictionary application examples

Objective	Key	Value
Dictionary lookup: find the definition of a word	word	definition
Book index: find pages where a given term occurs	term	list of page numbers
Web search: find web pages with relevant material	keyword	list of page names
File system: find file on disk	filename	location on disk
Compiler development: find properties of a variable	variable	type and value
DNS: find IP address of a domain	domain name	IP address
Routing table: route Internet packages	destination	best route
Financial accounting: process transactions	invoice No.	invoice details
Genomics: find markers	DNA string	known positions
Mathematics: perform operations with sparse vectors	index	element value