



**DATA
CULTURE
SOCIETY**

CDCS.ED.AC.UK

SCOTTISH
GRADUATE
SCHOOL FOR
ARTS &
HUMANITIES
Sgoil Ceumachaidh na h-Alba airson
Ealaín agus Daonlachdan
2014-2024

Mr. MacLean, and the Tutor in his family (the Rev. Mr. Ferguson),
having ac^d to point out those mark,
by which I was to find my way ~~thenceforward~~ over the hills to
Lochmorie. We shook hands heartily & parted.

But, I had not proceeded one third of the track, rough
as it was, till I observed the night-clouds gathering on the east,
in such a manner as to cover the dark knightly
as I had done, - I soon found myself alone; and in
the sad plight of a traveller benighted. -经过了一夜
的颠沛，我独自一人在黑暗中摸索着前行。
However further speech of my dire plight got to me, and
from the passengers of yesterdays party I learned
of a better way through marshy land. Even the far-
reaching darkness did not all obscure the

to grope my way the best manner I could.
When I had passed other two mountain streams, I thought I
heard the distant murmur of waves - and, it was no articulat
ception: — it was the roar of the sea, — now
the sound of Mull. Hearing this, I turned back, —
view in the act of calling a
that it was no great distance
having met the female that
me, distinctly; and, following on
soon found myself
at the door of the Inn, into which
repose, so sweet & refreshing,
and (now) a bed
impossible
bed-
land,



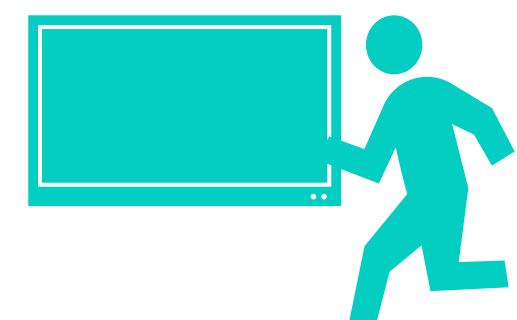
DAY 2

SEMINAR 1

Ozan Evkaya



*University Teacher In Statistics
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University of Edinburgh*



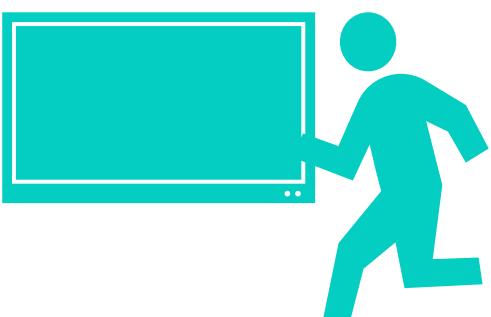


COFFEE BREAK

**WE ARE GOING TO RESTART AT
11:00**

FUNCTIONS

PART 1

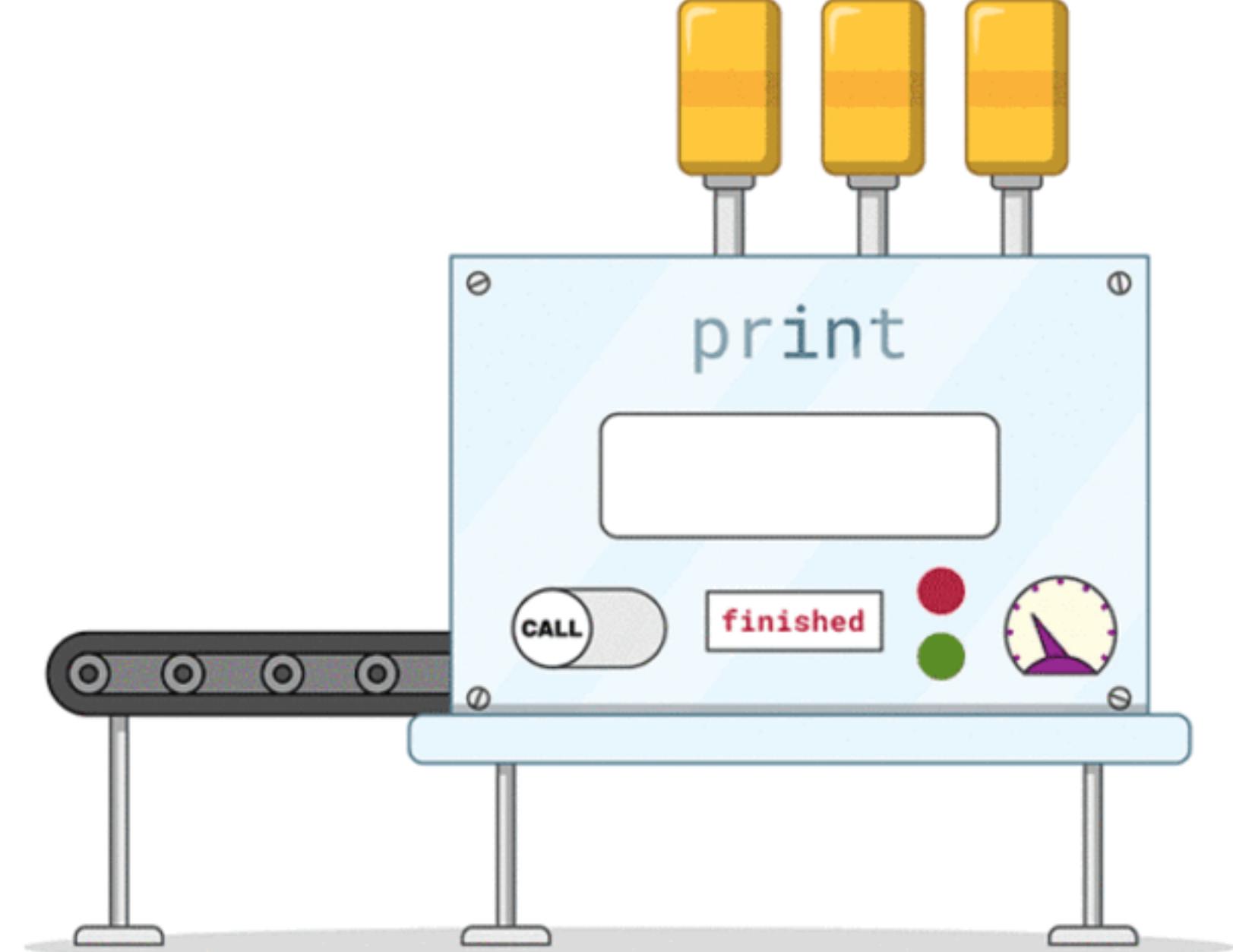


QUESTIONS TO ASK...

- 1.What is a function?
2. Why do we use functions?
3. How do I make a function in Python?



WHAT IS A FUNCTION?



WHAT IS A FUNCTION?

A way to generalise a process
that will need to be done over
and over again.



WHY DO WE USE FUNCTIONS?

- Reduce lines of code,
- Enhance computing performance,
- Make life easier!



WHY DO WE USE FUNCTIONS?



WHAT IS THE RECIPE FOR A FUNCTION IN PYTHON?

1. 'def'
2. Name
3. What goes into it (arguments)
4. What it does (the steps)
5. What it gives back (return value)



```
1 def bake_a_cake(cake_type, cake_size, cake_flavor, cake_filling, cake_frosting):
2     """This function bakes a cake of the specified type, size, flavor, filling, and frosting.
3
4     Args:
5         cake_type: The type of cake to bake, e.g. "chocolate", "vanilla", "red velvet".
6         cake_size: The size of the cake to bake, e.g. "small", "medium", "large".
7         cake_flavor: The flavor of the cake to bake, e.g. "chocolate", "vanilla", "strawberry".
8         cake_filling: The filling for the cake, e.g. "chocolate ganache", "vanilla buttercream", "strawberry jam".
9         cake_frosting: The frosting for the cake, e.g. "chocolate ganache", "vanilla buttercream".
10
11    Returns:
12        A cake of the specified type, size, flavor, filling, and frosting.
13    """
14
15    print(f"Baking a {cake_type} {cake_size} {cake_flavor} cake...")
16
17    # Prepare the cake batter
18    # ...
19
20    # Pour the batter into a cake pan
21    # ...
22
23    # Bake the cake
24    # ...
25
26    # Let the cake cool
27    # ...
28
29    # Fill the cake if specified
30    if cake_filling:
31        # Fill the cake
32        # ...
33
34    # Frost the cake if specified
35    if cake_frosting:
36        # Frost the cake
37        # ...
38
39    print("Cake is ready!")
40    return f"{cake_type} {cake_size} {cake_flavor} cake with {cake_filling} and {cake_frosting}"
```



LETS GET PROGRAMMING

Session 4: Write the Recipe





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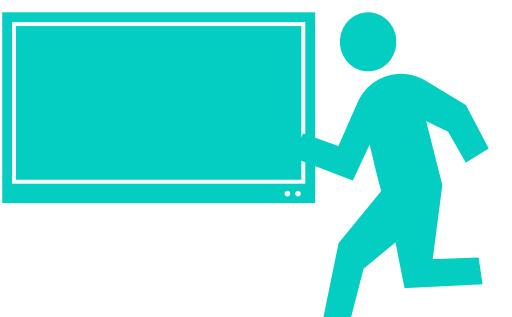


LUNCH BREAK

**WE ARE GOING TO RESTART AT
13:30**

FUNCTIONS

PART 2



LOCAL AND GLOBAL



Local:

Only those close to him (*within the same function*) who know about what he can do.

Global:

Can be accessed by anyone, anywhere – everyone knows what he can do!



THE SCOPE RULES

Rule 1: Anything inside a function is mysterious to the outside...

You are not able to peek inside of a function elsewhere in code.

Only things returned will become available to the 'global' environment.

Rule 2: Functions can look outside, but shouldn't...

Things can get complicated when a function looks outside.

We tackle this by carefully specifying arguments with relevant names.



LETS GET PROGRAMMING

Session 5: SCOPE





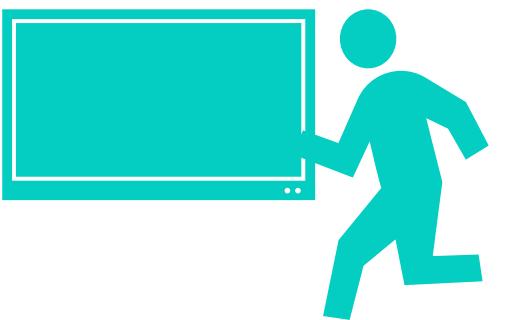
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COFFEE BREAK

**WE ARE GOING TO RESTART AT
15:30**

DATES AND TIMES



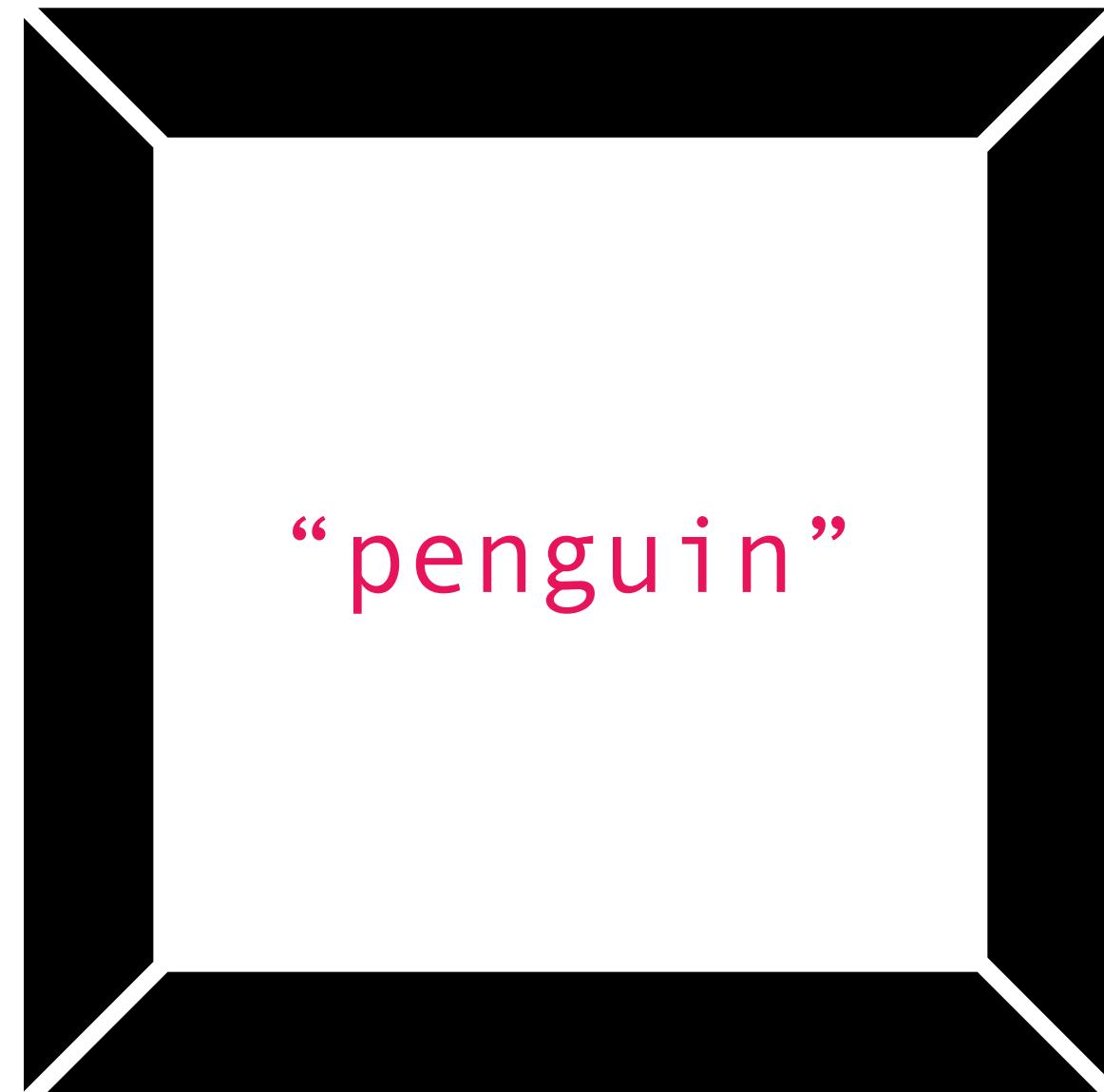
RECAP: VARIABLES

Variables are places to store values for later.

There are different types of variables:

- **string** for text, e.g. “*penguin*” or “*I like Python*”
- **int** (integer) for whole numbers, e.g. 1, 5, 2014
- **float** for decimal numbers, e.g. 2.25, 6.1246, 16.2
- **bool** (Boolean) for logic values: *True*, *False*

`my_favourite_animal`



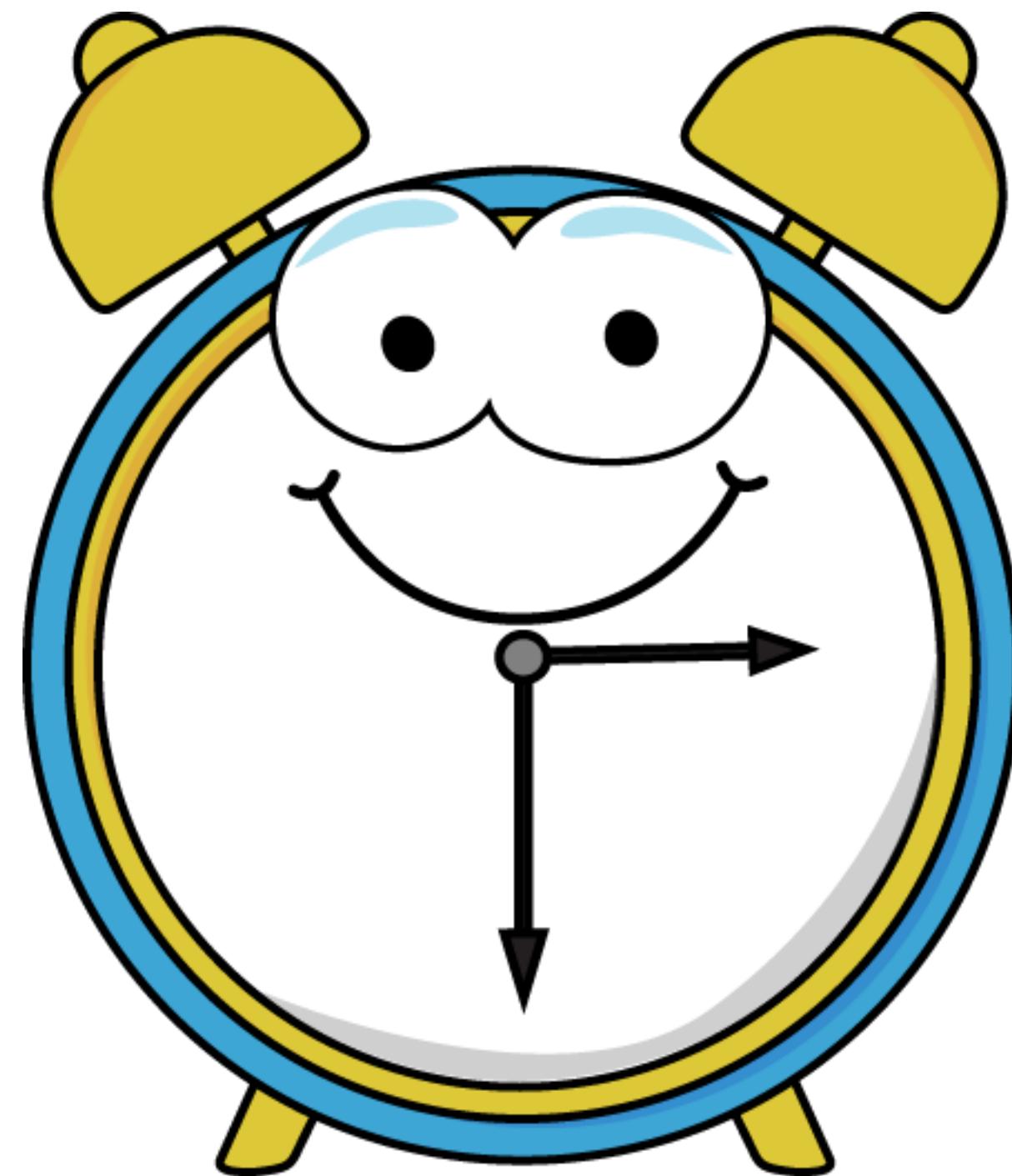
`my_favourite_animal = "penguin"`



ANOTHER DATA TYPE

Using the package ‘`datetime`’ we can introduce a special data type: **`datetime`**

With this we can manipulate times and dates, which is often useful for work across the arts, humanities and sciences!



WHAT IS A PACKAGE?



We mentioned in the previous slide that we would ‘import’ the ‘datetime’ package.

We’ll talk more about packages later in the week, but for now what you need to thing is a package is a collection of functions all to do with one purpose written and bundled together by an author.



HOW DO I IMPORT A PACKAGE?

```
import datetime as dt
```

- `import` is a special Python command for telling the interpreter to search for a package,
- `datetime` is the name of the package,
- `as` tells the interpreter we are going to ‘rename’ the package when using it,
- `dt` is the ‘nickname’ we will use in our code.

We only have to write (and run) this once per notebook.



WHAT CAN I DO WITH DATETIME?

Firstly I may want to get the current time...

`dt.datetime.now()`

- We firstly say we want to look at the package datetime by '`dt`'.
- Then we add '`.datetime`' to get to the functions within it.
- Finally we add '`.now()`' to get the current date-time.



WHAT CAN I DO WITH DATETIME?

We may instead want to create a specific date time object...

```
summer_school_start = dt.datetime(2024, 6, 10, 9, 0, 0)  
print("The summer school starts on:", summer_school_start)
```

The summer school starts on: 2024-06-10 09:00:00



LETS GET PROGRAMMING

Session 6: Date-Time

