PYTHON — SESSION 2

TEXT EDITOR

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RUNNINGA PYTHON SCRIPT

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```
$ python <file_name>.py
$ python hello_world.py
Hello, World!
```

VARIABLES

VARIABLES

```
name = "Charlie"
age = 27
left_to_pay = 29.99
has_paid = False
```

DATA TYPES

DATA TYPES

| TYPE | EXAMPLE | |
|---------|---------|---------------------------------|
| String | "Alice" | Characters surrounded by quotes |
| Integer | 13 | Whole number |
| Float | 3.99 | Decimal number |
| Boolean | True | True or False |
| None | None | Absence of value |

NUMERICAL OPERATORS

NUMERICAL OPERATORS

```
print(1 + 2) # Addition / Concatenation
print(5 - 3) # Subtraction
print(3 * 7) # Multiplication
print(49 / 7) # Division
print(4 ** 2) # Exponent
print(10 % 3) # Modulus (Remainder)
```

COMMENTS

COMMENTS

```
# The total including VAT
total = sub_total + vat
has_paid = False # If the user has paid or not
```

CASTING

CASTING

```
x = int(8.3)  # x will be 8
y = float(9)  # y will be 9.0
z = str(10.0)  # z will be '10.0'
```


INDEX

```
    C
    H
    A
    R
    L
    I
    E

    0
    1
    2
    3
    4
    5
    6
```

```
name = "CHARLIE"
print(name[0]) # Prints 'C'
print(name[1]) # Prints 'H'
```

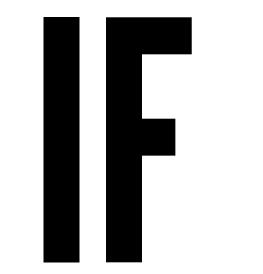

INPUT

```
name = input("What's your name? ")
print("Hello " + name)

age = int(input("How old are you? "))
age_in_10_years = age + 10
print("In 10 years you will be " + str(age_in_10_years))
```

QUESTIONS?

CONDITIONALS



IF

```
if True:
    print("This is always shown")

if False:
    print("This is never shown")
```

IF

```
if <expression>:
    # Will only be run if the expression is True
    <code>
```

INDENTING

INDENTING

```
name = "Alice"
if name == "Alice":
    print("Hello Alice")
```

COMPARATORS

| COMPARATOR | DESCRIPTION | EXAMPLE |
|------------|--------------------------|--------------------|
| == | Equals | "Alice" == "Alice" |
| <u>[</u> = | Does not equal | "Bob" != "Charlie" |
| < | Less than | 4 < 10 |
| > | Greater than | 12 > 8 |
| <= | Less than or equal to | 7<=7 |
| >= | Greater than or equal to | 8>=5 |

COMPARATORS

```
name = "Alice"
if name == "Alice":
    print("Hello Alice")
if name != "Charlie":
    print("You are not Charlie")
age = 24
if age >= 21:
    print("You are 21 or over")
```


ELSE

```
if 1 == 1:
    print("Yes")
else:
    print("No")
```

ELSE

```
if <expression>:
    # Will only be run if the expression is True
    <code>
else:
    # Will only be run if the expression is False
    <code>
```

ELSE

```
name = "Alice"
if name == "Alice":
    print("Hello Alice")
else:
    print("You are not Alice")
age = 24
if age >= 21:
    print("You are 21 or over")
else:
    print("You are 20 or younger")
```

CODINGTIME SECTION A

ELIF

```
name = "Bob"
if name == "Alice":
    print("Hello Alice")
elif name == "Bob":
    print("Hello Bob")
else:
    print("You must be Charlie")
```

ELIF

```
age = int(input("How old are you? "))
if age <= 13:
    print("You are 13 or younger")
elif age < 18:
    print("You are between 14 and 17")
elif age == 18:
    print("You are 18")
else:
    print("You are 19 or over")
```

AND, OR, NOT

AND, OR, NOT

```
if age > 12 and age < 20:
    print("You are a teenager")
if age < 13 or age > 19:
    print("You are not a teenager")
if not (age > 12 and age < 20):
    print("You are not a teenager")
```

CODINGTIME SECTION B

LIST

```
names = ["Alice", "Bob", "Charlie"]
print(names[0]) # Alice
print(names[1]) # Bob
print(names[2]) # Charlie
```

LIST — APPEND

```
names = ["Alice", "Bob", "Charlie"]

# Append a new value to the end of the list
names.append("Dave")

print(names) # ["Alice", "Bob", "Charlie", "Dave"]
```

LIST — CHANGE

```
names = ["Alice", "Bob", "Charlie"]

# Change the value stored in index 2
names[2] = "Chris"

print(names) # ["Alice", "Bob", "Chris"]
```

LIST — DELETE

```
names = ["Alice", "Bob", "Charlie"]
# Delete the item at index 1
del(names[1])
print(names) # ["Alice", "Charlie"]
```

LIST — IN

```
names = ["Alice", "Bob", "Charlie"]

# Check to see if "Eve" is in the list
if "Eve" in names:
    print("Eve is here")
else:
    print("Eve isn't here")
```

LIST — LENGTH

```
names = ["Alice", "Bob", "Charlie"]
# Get the number of items in the list
print(len(names)) # 3
```

LIST — SORT

```
names = ["Charlie", "Alice", "Bob"]

# Sort the items in the list alphabetically
names.sort()

print(names) # ["Alice", "Bob", "Charlie"]
```

CODINGTIME SECTION C

```
names = ["Alice", "Bob", "Charlie"]
for person in names:
    print(person)
# Alice
# Bob
# Charlie
```

```
for <item> in <items>:
    # Runs once for each item in items
    <code>
```

```
for my_number in range(5):
    print(my_number)
```

RANGES

RANGES

```
range(10)
\#[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
range(1, 5)
\#[1, 2, 3, 4]
range(2000, 2020, 4)
#[2000, 2004, 2008, 2012, 2016]
```

CODINGTIME SECTION D

EXERCISES

Finish off any exercises you did not complete in the session

FURTHER HELP DL-UKIHFCODE@KPMG.CO.UK