

# Python I

HIGHER DIPLOMA IN DATA ANALYTICS



# Database vs program

Employee ID	Name	Dept	Salary
100	John	HR	25500
101	Mary	R&D	44500
102	Bill	R&D	43000
103	Tom	Sales	40000

```
SELECT * FROM employees  
WHERE Salary > 42000;
```

```
SELECT * FROM employees  
WHERE Salary < 30000;
```



# Variables

- ▶ Variables are named areas in the computer's memory that store values.

```
my1stVariable = "Hello World"
```

```
print(my1stVariable)
```

```
Hello World
```

```
my2ndVariable = 1
```

```
my2ndVariable + 4
```

```
print(my2ndVariable)
```

```
1
```



# Variables

- Variables are named areas in the computer's memory that store values.

```
my2ndVariable = 1
```

```
x = my2ndVariable + 4
```

```
print(my2ndVariable)
```

1

```
print(x)
```

5

```
age = 21
```

```
age = age + 1
```

```
print(age)
```

22



# IF statements

```
age = 17
```

```
if (age > 17):  
    print("OK")  
print("Finished")
```

Finished

```
age = 17
```

```
if (age > 17):  
    print("OK")  
elif (age < 18):  
    print("NOK")  
print("Finished")
```

NOK  
Finished

```
temp = 37
```

```
if (temp > 37):  
    print("Hot")  
elif (temp < 37):  
    print("Cold")  
else:  
    print("OK")  
print("Finished")
```

OK  
Finished



# input

```
name = input("Enter name")
```

Enter name **Tom**

```
email = name + "@gmit.ie"
```

```
print(email)
```

Tom@gmit.ie

```
salary = input("Enter salary")
```

Enter salary  
**30000**

```
salary = int(salary)
```

```
salary = salary + 100
```

```
print(salary)
```

TypeError: can only concatenate str (not "int") to str



# WHILE statement

```
i = 1

while (i <= 5):
    print(i)
    i += 1
    # i = i + 1
```

```
1
2
3
4
5
```

```
answer = "5";

while True:
    guess = input("Pick a number between 1 & 10")
    if (guess == answer):
        print("Correct!")
        break;

print("End")
```



# ARRAYS

```
myArr = ["Jan", "Feb", "March", "April"]
```

```
print(myArr)
```

```
['Jan', 'Feb', 'March', 'April']
```

```
print(myArr[0])
```

```
Jan
```

```
print(len(myArr))
```

```
4
```





# append()

```
myArr = ["Jan", "Feb", "March", "April"]
```

```
myArr.append("May")
```

```
myArr = myArr.append("May")
```

```
print(myArr)
```

```
['Jan', 'Feb', 'March', 'April', 'May']
```



# FOR statement

```
names = ["Tom", "John", "Mary", "Bob"]
```

```
for name in names:  
    print (name+"@gmit.ie")
```

```
Tom@gmit.ie  
John@gmit.ie  
Mary@gmit.ie  
Bob@gmit.ie
```

```
myArr = [1, 5, 12]
```

```
for x in myArr:  
    print(x+1)
```

```
2  
6  
13
```

```
print(myArr)
```

```
[1, 5, 12]
```



# User-defined functions

```
def printMonths():  
    print("Jan, Feb, Mar")
```

```
def printDays():  
    print("Mon, Tue, Wed")
```

```
printDays()
```

Mon, Tue, Wed
---------------

```
printMonths()
```

Jan, Feb, Mar
---------------



name

```
def printMonths():  
    print("Jan, Feb, Mar")  
  
def main():  
    printMonths()  
  
if __name__ == "__main__":  
    # execute only if run as a script  
    main()
```

Jan, Feb, Mar



# Parameters

```
print("Hello World")
```

Hello World

```
print("Test")
```

Test

```
s = "This is a String"
```

```
print(len(s))
```

16

```
s = "This is a String"
```

```
x = len(s)
```

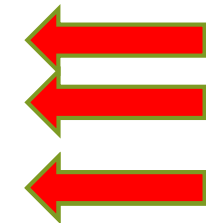
```
print(x)
```

16



# Parameters

```
def checkAge(age):  
    if age < 18:  
        return "Too Young"  
    return "Accepted"  
  
def main():  
    name = input("Enter Name:" )  
    age = int(input("Enter Age: "))  
    print(name, "is", checkAge(age))  
  
if __name__ == "__main__":  
    # execute only if run as a script  
    main()
```



Enter Name:	Tom
-------------	-----

Enter Age:	22
------------	----


Tom is Accepted	
-----------------	--



# Local Variables

```
def checkAge(age):  
    limit = 18  
    if age < limit:  
        return "Too Young"  
    return "Accepted"  
  
def main():  
    name = input("Enter Name:" )  
    age = int(input("Enter Age: "))  
    print(name, "is", checkAge(age), limit)  
  
if __name__ == "__main__":  
    # execute only if run as a script  
    main()
```

```
def checkAge(age):  
    limit = 18  
    if age < limit:  
        return "Too Young"  
    return "Accepted"  
  
def main():  
    limit = "Finished"  
    name = input("Enter Name:" )  
    age = int(input("Enter Age: "))  
    print(name, "is", checkAge(age), limit)  
  
if __name__ == "__main__":  
    # execute only if run as a script  
    main()
```



# Global Variables

```
def incrementAge(age):  
    age += 1  
    print(age)
```

25

```
def main():  
    age = 24  
    incrementAge(age)  
    print(age)
```

24

```
if __name__ == "__main__":  
    # execute only if run as a script  
    main()
```

```
age = 24
```

```
def incrementAge():  
    global age  
    age += 1  
    print(age)
```

25

```
def main():  
    incrementAge()  
    print(age)
```

25

```
if __name__ == "__main__":  
    # execute only if run as a script  
    main()
```

