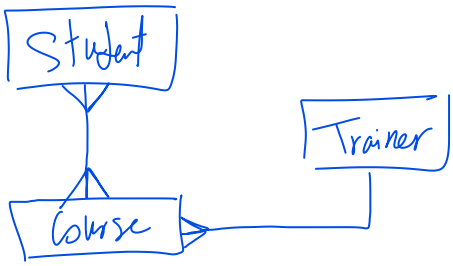
Web Development
Data Science
network/security

5w
4d
2hr

Intro to Programming Using Python

- Input/output
- Variables/Datatypes
- Expressions/functions
- if-stat.
- Loops (for, while)
- List, dict, ...
- functions
- OOP

- File R/w
- Connect DB
- GUI (HR system)



Programs:
* Python
* PyCharm

Errors:
* Syntax
* Runtime
* Logic

Input
Storage
Process
output

salary → Variable
7000 → int / float / str

annual_salary = salary * 12

mark = 23
full_mark = 25

$$pct = \frac{mark}{full\_mark} * 100$$

92

Math operators

1. **
2. *, /, //, %
3. +, -

2 + 3 / 3 → 3 (1)

3 / 3 * 2 → 2 (1)

5^2 → 5**2 → 25

5/2 → 2.5
3/2 → 1.5

5//2 → 2
3//2 → 1

7 % 3 → 1
11 % 3 → 2
10 % 2 → 0

Assignment operator

```
x = 5
x = 3
x = x + 5
x += 2
x + 5
x *= 3
x -= 5
```

x: 5, 3, 8, 10, 30, 25

Common functions

max(2,5,3) → 5

min(2,5,3) → 2

round(19.647) → 20

round(19.647,1) → 19.6

randint(0,10) → 2, 7, 4

weight | height

68 | 182

$$bmi = \frac{weight}{(height/100)^2}$$

20.52...

```
if bool-expr:
    true
always
```

```
if bool-expr:
    true
else:
    false
always
```

Relational operators

>, >=, <, <=

==, !=

x = 5 → x: 5

x == 3 → False

x != 3 → True

```
if bool-expr:
    T
elif bool-expr:
    F,T
elif bool-expr:
    F,F,T
    .
    .
else:
    allfalse
always
```

weight | height

$$bmi = \frac{weight}{(height/100)^2}$$

- < 18.5 Underweight
- < 25 Normal
- < 30 Overweight
- Obese

Logical operators

bool-expr and/or bool-expr

not bool-expr

day

1-5 → work-day

6,7 → ff-day

else → Invalid

Day

7,1-4 → work-day

5,6 → ff-day

else → Invalid

what's 7 * 4?

→ 20 ↙ wrong

→ 28 ↘ correct

randint(0,10)