



Control and Loop Structures

By: Iman Khani Jazani

- *Senior Data Scientist, Community builder | Adin*
- *AI and Data Specialist, Business Developer | AiHum*
- *Adjunct Professor | Sharif University of Technology*



Last Lecture



- Short Presentation
- Review the Last Lecture
- What are statements from flowchart view?
- Programming with Python
- **Application of Programming in the Digital Age!**



Today

- Short Presentation
- Review the Last Lecture
- Coding a simple example
- Programming with Python
- **Application of Programming in the Digital Age!**



Together

Send your feedback about the
class whenever you want!



Contact me

- Gmail: ImanKhaniJazani@gmail.com
- LinkedIn: <https://www.linkedin.com/in/ImanKhaniJazani/>
- Telegram: [@IKJ1992](https://t.me/IkJ1992)





Grading

راه جبران هم تحت شرایطی
وجود داره!

- Approx. 25% Programming Assignments (judgment with Quera)
- Approx. 14% Mid-term Project (alone, judgment with TAs and Quera)
- Approx. 37% Final Project (team work~5 member, judgment with TAs and Quera)
 - *Proposal (about real needs)*
 - *Coding*
 - *Release*
- Approx. 30% Final Exam (algorithm-based paper exam)
- Approx. 5% Short Presentation(extra score , for the next week lecture, only for the first two person)
- Approx. 2% Challenging Questions and Contributions in Class or Telegram group (extra score)
- Approx. 7% long presentation (extra score)
- Approx. ?% Quiz

Short Presentations



How can computer detect which locations in memory are instruction or value or ...?

Reserved

Who is volunteer for the short presentation?

Short Presentation



What is clean code? What is clean code in Python? How can we care it?

Who is volunteer for the short presentation?

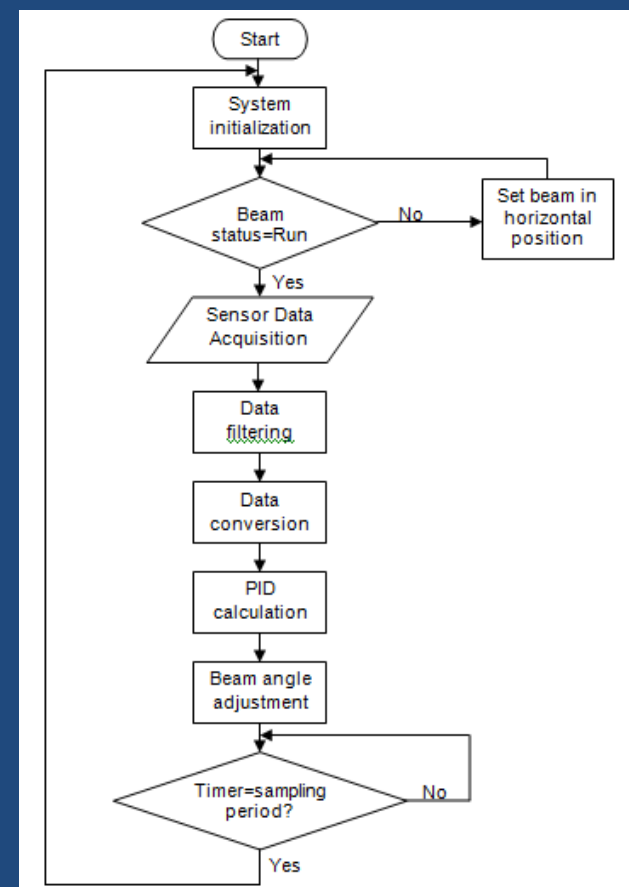
Short Presentation

Review the Last Lecture



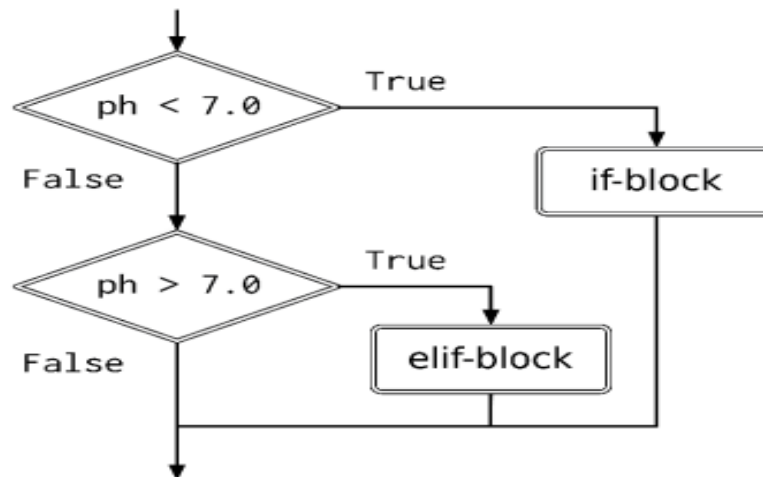
We have different types of statement!

- Simple statement (+)
- Loop statement (while, for)
- Control statement (if, else, elif)





Control statements



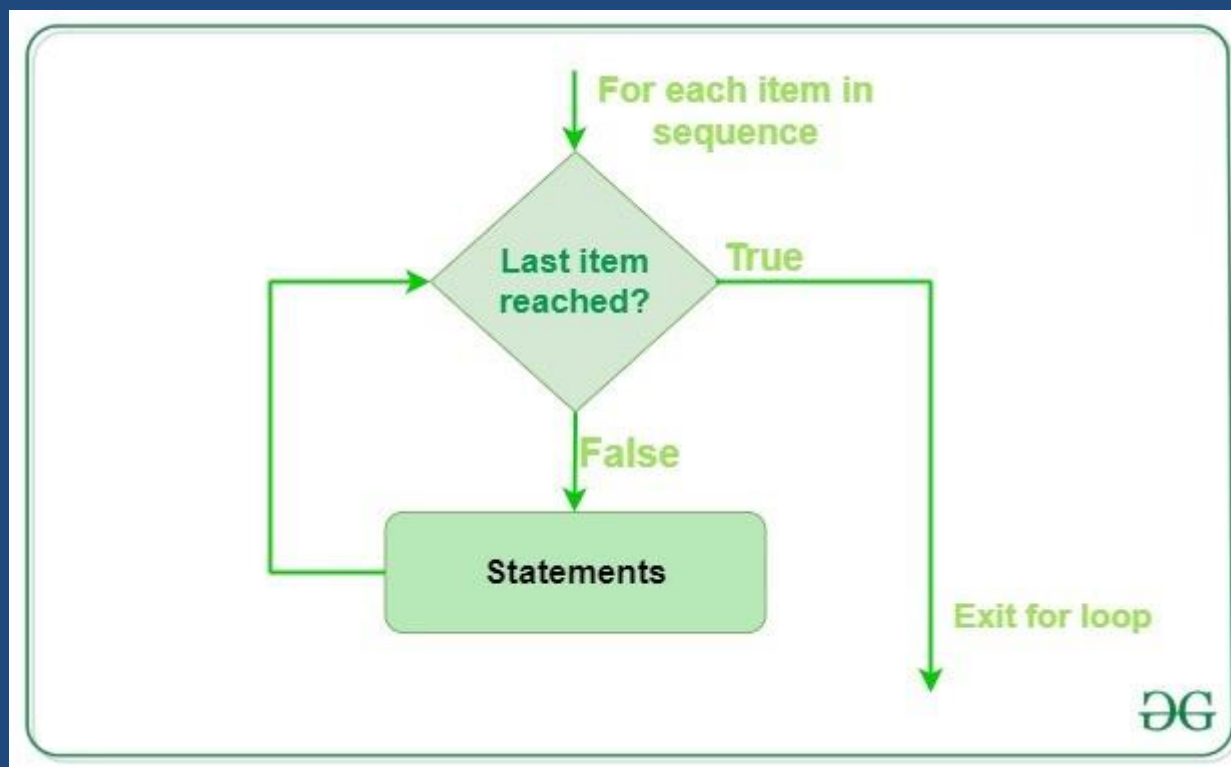
This flowchart shows that if the first condition evaluates to True, the second condition is skipped.

If the pH is exactly 7.0, neither clause matches, so nothing is printed:

```
>>> ph = float(input('Enter the pH level: '))
Enter the pH level: 7.0
>>> if ph < 7.0:
...     print(ph, "is acidic.")
... elif ph > 7.0:
...     print(ph, "is basic.")
...
>>>
```



Simple example





Loop statements

In python, a while loop is used to execute a block of statements repeatedly until a given condition is satisfied. And when the condition becomes false, the line immediately after the loop in the program is executed.

Syntax :

```
while expression:  
    statement(s)
```

All the statements indented by the same number of character spaces after a programming construct are considered to be part of a single block of code. Python uses indentation as its method of grouping statements.

Example:



نتیجہ کوئیز یہووی...

- (مدرس: مسعود کاویانی عزیز) <https://www.aparat.com/v/1XLFZ?playlist=457876>
- <https://maktabkhooneh.org/course/%D8%A2%D9%85%D9%88%D8%B2%D8%B4-%D8%B1%D8%A7%DB%8C%DA%AF%D8%A7%D9%86-%D9%BE%D8%A7%DB%8C%D8%AA%D9%88%D9%86-%D9%85%D9%82%D8%AF%D9%85%D8%A7%D8%AA%DB%8C-mk674/>
- <https://maktabkhooneh.org/course/%D8%A2%D9%85%D9%88%D8%B2%D8%B4-%D8%A8%D8%B1%D9%86%D8%A7%D9%85%D9%87-%D9%86%D9%88%DB%8C%D8%B3%DB%8C-%D8%A8%D8%A7-%D9%BE%D8%A7%DB%8C%D8%AA%D9%88%D9%86-%D9%85%D9%82%D8%AF%D9%85%D8%A7%D8%AA%DB%8C-mk346/>
- <https://maktabkhooneh.org/course/%D8%A2%D9%85%D9%88%D8%B2%D8%B4-%D8%B1%D8%A7%DB%8C%DA%AF%D8%A7%D9%86-%D9%BE%D8%A7%DB%8C%D8%AA%D9%88%D9%86-%DA%A9%D8%A7%D8%B1%D8%A8%D8%B1%D8%AF%DB%8C-mk1352/>
- یوتیوب



BUT, our class is based on:

BFS



Coding a Simple Example



Power of a number...

- What are inputs, outputs?
- What is its algorithm?
- What is its flowchart?
- Lets go to our coding 😊



For Now...

- Numeric
- Boolean
- String
- List

Programming with Python



Question

What is the website need?

- How can we get more users for our news website?

آیا کارمون اخلاقی بود؟؟؟

- Our solution: find most frequent words in news



From question to algorithm!

- Understand your needs or questions!
 - explain easily for someone else
- Decompose your problem (make some steps)!
- Make a flowchart for the decomposed version of your problem
- Explain each steps in one or two sentences (paper-based or paperless)
 - input, output, process
- Explain each steps mathematically...
- Develop your algorithms for each steps
- Check your process flow from the first step to the last one!



Let's go for your solutions and coding with each other 😊

- Input?
- Output?
- Process?



Application of Programming in the Digital Age!



طراحی داروهای شخصی سازی شده!

صفحه اصلی

بلاگ

درباره ما

تماس با ما

همکاری

دوره های آموزشی

خدمات

فرم ثبت نام

سخنرانی

EN

+

سلام.

آزمایشگاه پارس سیلیکو.
اولین آزمایشگاه خصوصی
بیوانفورماتیک کشور

و تنها ارائه کننده خدمات آموزشی پژوهشی در زمینه های بیوانفورماتیک ،
کمونفورماتیک ، ایمونوفورماتیک ، طراحی دارو ، طراحی واکنش ، طراحی و
پیاده سازی دیتابیس های زیستی و نصب و راه اندازی سرور های محاسباتی
در خاورمیانه



طراحی واکنش





طراحی دارو





ساخت موجودی شبیه به انسان ممکن است؟



Lecture Resources