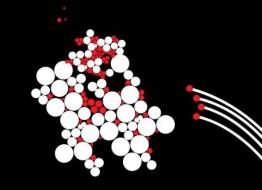
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The List Concept

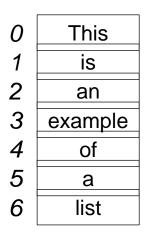
Topic of Software Systems (TCS module 2)

Lecturer: Marieke Huisman





MODULE 1: LISTS IN PYTHON



- List = sequence of values (≈ ordered set)
 - Each value has a position: its index
 - Indexes start at 0
 - Length of the list = number of elements (= 7)
- Suppose the list to the left is called line
 - line[0] is the word "This", line[1] is the word "is" etc.
 - line[7] does not exist (index 7 is not valid)

LISTS ARE EVERYWHERE

INTUITIVELY

- List is a placeholder for (references to) things
- Things in a list have the same type
- Things in a list have a position
- Position of a thing in a list can change

Club			MP	W	D	L	GF	GA	GD	Pts	Last 5
1		Ajax	15	13	2	0	52	12	40	41	00000
2	AZ	AZ Alkmaar	15	11	2	2	35	8	27	35	00000
3	- N	PSV Eindhoven	15	8	4	3	32	19	13	28	0000
4	0	Willem II	15	8	2	5	23	21	2	26	⊘ ○ ⊘ ⊗ ⊘
5	(3)	Heracles	15	7	3	5	29	22	7	24	8888
6		Heerenveen	15	6	6	3	24	18	6	24	⊘ ② ⊘ ○ ○
7	•	Feyenoord	15	6	6	3	27	25	2	24	0000
8		Utrecht	15	7	2	6	28	22	6	23	88899
9		Vitesse	15	7	2	6	26	24	2	23	88888
10	(Groningen	15	6	3	6	18	16	2	21	3 9 9 9
11	3	Sparta	15	5	4	6	24	28	-4	19	8 8 8 8
12	•	Twente	15	5	3	7	26	31	-5	18	8888
13	*	FC Emmen	15	4	3	8	18	30	-12	15	
14	6	Fortuna Sittard	15	4	3	8	20	35	-15	15	0000
15		Zwolle	15	4	1	10	22	34	-12	13	8 8 8 8
16	A	VVV	15	4	0	11	14	39	-25	12	8888
17		Den Haag	15	3	2	10	17	30	-13	11	⊗ ⊗ ⊗ ⊘
18	•	RKC Waalwijk	15	2	2	11	16	37	-21	8	0000

LISTS IN PROGRAMMING LANGUAGES

- Lists are finite
 - Have a length (= number of elements), which can be 0 ("empty list")
- Lists define a sequence
 - Elements in a list are in a certain order
 - Elements are numbered (indexed)
 - In Java, numbering starts with 0('offset')
- Elements in a list are homogenous
 - From the same (reference) type (directly or indirectly)

Easier to find elements in memory!