10 Programming for everyone
～ Introduction to computer programming in VISCUIT ～

Abstract

We used the visual programming language VISCUIT to develop a new curriculum both for teaching programming and for answering the question "What is a computer?". The course was open to non-experts, and it was well received. For non-experts, with classroom learning or reading alone, it is very difficult to understand what a computer is. The experience of writing a program is important too. Using VISCUIT, which makes it simple to write programs, non-experts can understand computers easily. By achieving a widespread understanding of computers, everyone will be able to help construct the coming IT society.

Curriculum content

Why computers use binary numbers

Execution

Addition of one-digit binary
add 0 and 1 becomes 1.
add 1 and 1 becomes 10.

When we compare the complexities of binary, ternary and decimal computing, binary computing is the simplest. Human beings feel that decimal computing is simpler than binary computing because they remember the addition of one-digit decimals
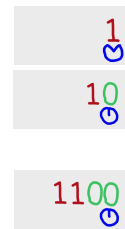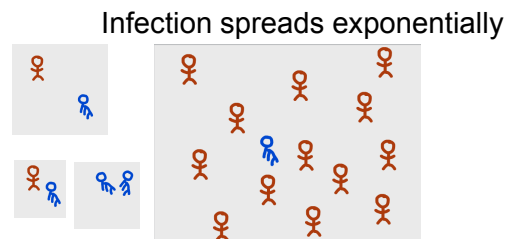
Computer simulation
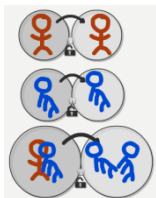
Disease infection simulation program

Infection spreads exponentially

Difference between linear and exponential functions
Essential nature of information (does not decrease even if there is replication).

Impressions of participants

Binary: If only I had learned in this way …
Simulation: I felt the possibility of the original computer

Related work

[1] Harada, Y., "Everyone should learn programming," *55th Programming Symposium, IPSJ*, 2014 (In Japanese).
[2] Harada, Y., Katsunuma N. and Kuno Y., "Programming education by non-professional in the extra-curricular activities of public elementary school," *IPSJ Journal*, Vol.55, No.8 (to appear)(in Japanese).

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