

Know Your Bugs:

Syntax Errors



Explanation

A program must be written according to the "grammatical" rules of that particular language.

Common Bugs

- Misspelled commands or identifiers
- Missing or incorrect quotations
- Wrong equality symbol (== vs := vs =)

Ontario Curriculum Expectations

Computer Science

ICS2O (Grade 10):

B2.6. explain the difference between syntax, logic, and run-time errors.

ICS3U (Grade 11 university prep):

A4.1. demonstrate the ability to identify and correct syntax, logic, and run-time errors in computer programs.

ICS3C (Grade 11 college prep):

A3.1. explain the difference between syntax, logic, and run-time errors in computer programs.

A3.2. demonstrate the ability to correct syntax, logic, and run-time errors in computer programs.

ICS4U (Grade 12 university prep):

A4.1. work independently, using support documentation, to resolve syntax issues during software development.

ICS4C (Grade 12 college prep):

C2.2. work independently to resolve syntax issues while programming.

Sample Follow-up Exercises

Example of Program with Syntax Errors in Turing

```
var i : Int
i := 1
loop
    put i
    i = i + 1
    exit if i = 10
end loop
```

Example of Program with Syntax Errors in Java

```
public class Greeting {
    public static void main(String[ ] args)
        system.out.println("Hello World! ");
    }
}
```

Using an error log such as the one below, students should debug the code provided.

Sample Error Log

| Type of Error | Description/Example | Correction |
|---------------|--|---|
| syntax | Variable type should be small I int var i : Int | var i: int |
| syntax | Missing second quote System.out.println ("Hello World!); | System.out.println ("Hello World!"); |
| | | |
| | | |

Another Activities

1. Have students submit code with syntax errors electronically to each other or the teacher, and then assign each student a random program to debug and get running.
2. Start your own collection of programs with syntax errors. This collection can be use for quizzes, tests, and classroom practice.
3. See the Summer Institute 2008 resource by Jaqueline Payne on debugging and verification. This resource contains a number of Turing files complete with logic, runtime, and syntax errors. (<http://www.cemc.uwaterloo.ca/events/csteachers.html>)