Study Guide: Introduction to Programming

Your first practice quiz is coming up soon. This handy study guide should help you prepare for that quiz. The practice quizzes do not count towards your grade in this course. Practice quizzes are opportunities for you to check your understanding of the materials before you take the graded assessments at the end of each module.

Key Terms

- **Programming code** - Programming code is a set of written computer instructions, guided by rules, using a computer programming language. It might help to think of the computer instructions as a detailed, step-by-step recipe for performing tasks. The instructions tell computers and machines how to perform an action. Programming code may also be referred to as source code or scripts.

- **Programming languages** - Programming languages are similar to human spoken languages in that they both use syntax and semantics. Programming languages are used to write computer programs. Some common programming languages include Python, Java, C, C++, C#, and R.

- **Syntax** - Syntax is a set of rules for how statements are constructed in both human and computer languages. Programming syntax includes rules for the order of elements in programming instructions, as well as the use of special characters and their placements in statements. This concept is similar to the syntax rules for grammar and punctuation in human language.

- **Semantics** - Semantics refers to the intended meaning or effect of statements, or collections of words, in both human and computer languages. Semantic errors are also referred to as logical errors.

- **Computer program** - A computer program is a step-by-step list of instructions that a computer follows to reach an intended goal. It is important to be clear and precise about the actions a computer program is supposed to perform because computers will do exactly what they are instructed to do. Computer programs can be long, complex, and accomplish a variety of tasks. They are often developed by computer programmers and software engineers, but anyone can learn to create them. Computer programs may involve a structured development cycle. They can be written in a wide variety of programming languages, such as Python, Java, C++, R, and more. The completed format of a program is often a single executable file.

- **Script** - Scripts are usually shorter and less complex than computer programs. Scripts are often used to automate specific tasks. However, they can be used for complex tasks if needed. Scripts are often written by IT professionals, but anyone can learn to write scripts. Scripts have a shorter, less structured development cycle as compared to the development of complex computer programs and software. Scripts can be written in a variety of programming languages, like Python, Javascript, Ruby, Bash, and more. Some scripting languages are interpreted languages and are only compatible with certain platforms.

- **Automation** - Automation is used to replace a repetitive manual step with one that happens automatically.

- **Output** - Output is the end result of a task performed by a function or computer program. Output can include a single value, a report, entries into a database, and more.

- **Input** - Input is information that is provided to a program by the end user. Input can be text, voice, images, biometrics, and more.

- **Functions** - A function is a reusable block of code that performs a specific task.

- **Variables** - Variables are used to temporarily store changeable values in programming code.

Mark as completed