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1. Data structures are ways of organizing data, such as strings, integers, and floating point numbers. Benefits of data structures include data accessibility and improved computational performance.

2. A. Alan Turing invented the concept of a Turing machine. A Turing machine is a machine that takes a series of symbols as its input and produces a series of symbols as output according to a set of rules. This set of rules is an algorithm, which is a set of operations to be performed. Any formula can be expressed in terms of an algorithm, meaning that a true Turing machine is capable of any sort of computation. This is significant because any formalizable truth can be used in the context of a Turing machine such as a modern computer.

2. B. Grace Hopper invented the compiler and developed the idea of machine-independent programming languages. Compiler development is significant because it allows for the development of computer languages which are closer to human languages and are thus easier to program in, facilitating new types of abstraction. Grace Hopper also contributed to the development of COBOL, which is still used in many financial applications and was one of the first practical languages for non-research work.

3. Compiled languages are faster. Instead of executing each instruction independently, as in the case of an interpreter, compilers process the *entire* program as they create an executable file. This gives them the opportunity to make larger-scale optimizations based off of the code’s *total* execution, meaning that compiled languages (providing that they have a good compiler) are generally significantly faster than interpreted languages. This total-program optimization is so helpful that modern scripting languages often utilize it in the form of just-in-time compilation, which is performed at runtime rather than beforehand.

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