However, Charles Babbage had already written his first program for the Analytical Engine in 1837.  
Normally the first step in debugging is to attempt to reproduce the problem.  
For example, when a bug in a compiler can make it crash when parsing some large source file, a simplification of the test case that results in only few lines from the original source file can be sufficient to reproduce the same crash.  
Many applications use a mix of several languages in their construction and use.  
The Unified Modeling Language (UML) is a notation used for both the OOAD and MDA.  
Normally the first step in debugging is to attempt to reproduce the problem.  
Methods of measuring programming language popularity include: counting the number of job advertisements that mention the language, the number of books sold and courses teaching the language (this overestimates the importance of newer languages), and estimates of the number of existing lines of code written in the language (this underestimates the number of users of business languages such as COBOL).  
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He gave the first description of cryptanalysis by frequency analysis, the earliest code-breaking algorithm.  
Techniques like Code refactoring can enhance readability.  
Integrated development environments (IDEs) aim to integrate all such help.  
Also, specific user environment and usage history can make it difficult to reproduce the problem.  
 A similar technique used for database design is Entity-Relationship Modeling (ER Modeling).  
This is interpreted into machine code.  
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