

1. INTRODUCTION

Software that uses Regular Expressions

RegEx in Software Tools

One of the first occurrences of the incorporation of regular expressions in software tools was in 1968, when Ken Thompson built Kleene's regex notation into the text editor **QED** that ran on an operating system called **CTSS (Compatible Time-Sharing System)**, which allowed users to search for, and replace, specific formats of text.

Thompson went on to co-develop the **Unix** operating system in 1969, which proved to be a very popular operating system for many years. He and others incorporated regexes into many software tools, including text editors such as **ed**, **sed**, **vi** and **Emacs**. He also developed other tools that uses regexes such as **grep**, which can be used to search files for text that matches a particular pattern, and this led to the development of **AWK**, which is a scripting language for extracting data from files.

BIOGRAPHY: Ken Thompson



Ken Thompson was born on February 4th, 1943, in New Orleans, Louisiana. He is a notable Computer Scientist who helped design and implement the original Unix operating system. He also invented a number of programming languages (including B, Bon, and Go), operating systems (Unix, Plan 9, and Inferno), and utilities such as QED, ed, and grep.

By the 1980s regular expressions were incorporated into a series of formal standards including work by the International Organization for Standardization to create the **ISO SGML** standard. And in 1992 they were incorporated into a standard for operating systems by the IEEE Computer Society in their **POSIX** family of standards.

In 1996, the **PostgreSQL** RDBMS (relational database management system) was developed as a free and open-source RDBMS emphasizing extensibility and its compliance with regular SQL. It incorporates regexes as part of its key features.

In the late 2010s, computer companies started to offer hardware implementations of regexes, including ones that are incorporated into **FPGAs (Field-Programmable Gate Arrays)** and **GPUs (Graphics Processing Units)**.

RegEx in Computer Programming Languages

We can use regexes in many programming languages, and their functions are either built directly into the programming languages (like in **Perl** and **ECMAScript**) or they can be included into the language by using a software library (which is a collection of additional features that can be optionally included into a programming language to extend the functionality of the language), in languages like **C**, **C++**, **Java**, and **Python**.

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