

BCA SEMESTER - II
0302203
HISTORY OF COMPUTING

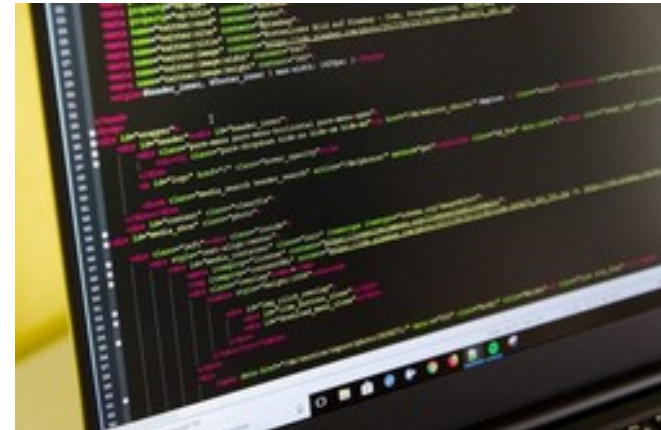
UNIT - 3
HISTORY OF PROGRAMMING LANGUAGES

- Dr. Disha Shah

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- **History of Programming Languages**

- Ada Lovelace's machine algorithm
- Machine Language
- Symbolic Programming Language
- Lower Level Languages
- Higher Level Languages
- FORTRAN
- ALGOL (Algorithmic Language)
- LISP (List Processor)
- COBOL (Common Business Oriented Language)



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- **Mid 1900s (Any 3)**

- BASIC
- PASCAL
- Smalltalk,
- C,
- PROLOG
- Ada
- C++
- Python
- Ruby
- Java,
- PHP
- Java Script

- **Mid 2000s (Any 3)**

- Scala
- Go
- Dart
- Swift
- AlphaGo
- Rust
- Kotlin
- Flutter
- NLP

PASCAL

- Pascal is a general-purpose, high-level language that was originally developed by Niklaus Wirth in the early 1970s.
- It was developed for teaching programming as a systematic discipline and to develop reliable and efficient programs.
- Pascal is Algol-based language and includes many constructs of Algol.
- Algol 60 is a subset of Pascal.
- Pascal offers several data types and programming structures.
- It is easy to understand and maintain the Pascal programs.

PASCAL

- Pascal has grown in popularity in the teaching and academics arena for various reasons:
 - Easy to learn.
 - Structured language.
 - It produces transparent, efficient and reliable programs.
 - It can be compiled on a variety of computer platforms.

Features of the Pascal Language

- Pascal is a **strongly typed language**.
- It offers **extensive error checking**.
- It **offers several data types** like arrays, records, files and sets.
- It offers a **variety of programming structures**.
- It **supports structured programming** through functions and procedures.
- It **supports object oriented programming**.

Facts about Pascal

- The **Pascal language** was named for **Blaise Pascal**, French mathematician and pioneer in computer development.
- Niklaus Wirth completed development of the original Pascal programming language in **1970**.
- Pascal is based on the **block structured style** of the **Algol programming language**.
- Pascal was developed as a language suitable for **teaching programming as a systematic discipline**, whose implementations could be both reliable and efficient.
- The ISO 7185 Pascal Standard was originally **published in 1983**.
- Pascal was the primary **high-level language** used for development in the Apple Lisa, and in the early years of the Mac.
- In **1986**, **Apple Computer** released the first **Object Pascal implementation**, and in **1993**, the **Pascal Standards Committee** published an **Object-Oriented Extension to Pascal**.

Why to use Pascal?

- Pascal allows the programmers to define complex structured data types and build dynamic and recursive data structures, such as lists, trees and graphs.
- Pascal offers features like records, enumerations, subranges, dynamically allocated variables with associated pointers and sets.
- Pascal allows nested procedure definitions to any level of depth.
- This truly provides a great programming environment for learning programming as a systematic discipline based on the fundamental concepts.

Why to use Pascal?

- Among the most amazing implementations of Pascal are
 - Skype
 - Total Commander
 - TeX
 - Macromedia Captivate
 - Apple Lisa
 - Various PC Games
 - Embedded Systems

Pascal compilers and interpreter

- **Turbo Pascal** – provides an IDE and compiler for running Pascal programs on CP/M, CP/M-86, DOS, Windows and Macintosh.
- **Delphi** – provides compilers for running Object Pascal and generates native code for 32- and 64-bit Windows operating systems, as well as 32-bit Mac OS X and iOS. Embarcadero is planning to build support for the Linux and Android operating system.
- **Free Pascal** – it is a free compiler for running Pascal and Object Pascal programs. Free Pascal compiler is a 32- and 64-bit Turbo Pascal and Delphi compatible Pascal compiler for Linux, Windows, OS/2, FreeBSD, Mac OS X, DOS and several other platforms.
- **Turbo51** – It is a free Pascal compiler for the 8051 family of microcontrollers, with Turbo Pascal 7 syntax.
- **Oxygene** – It is an Object Pascal compiler for the .NET and Mono platforms.
- **GNU Pascal (GPC)** – It is a Pascal compiler composed of a front end to GNU Compiler Collection.

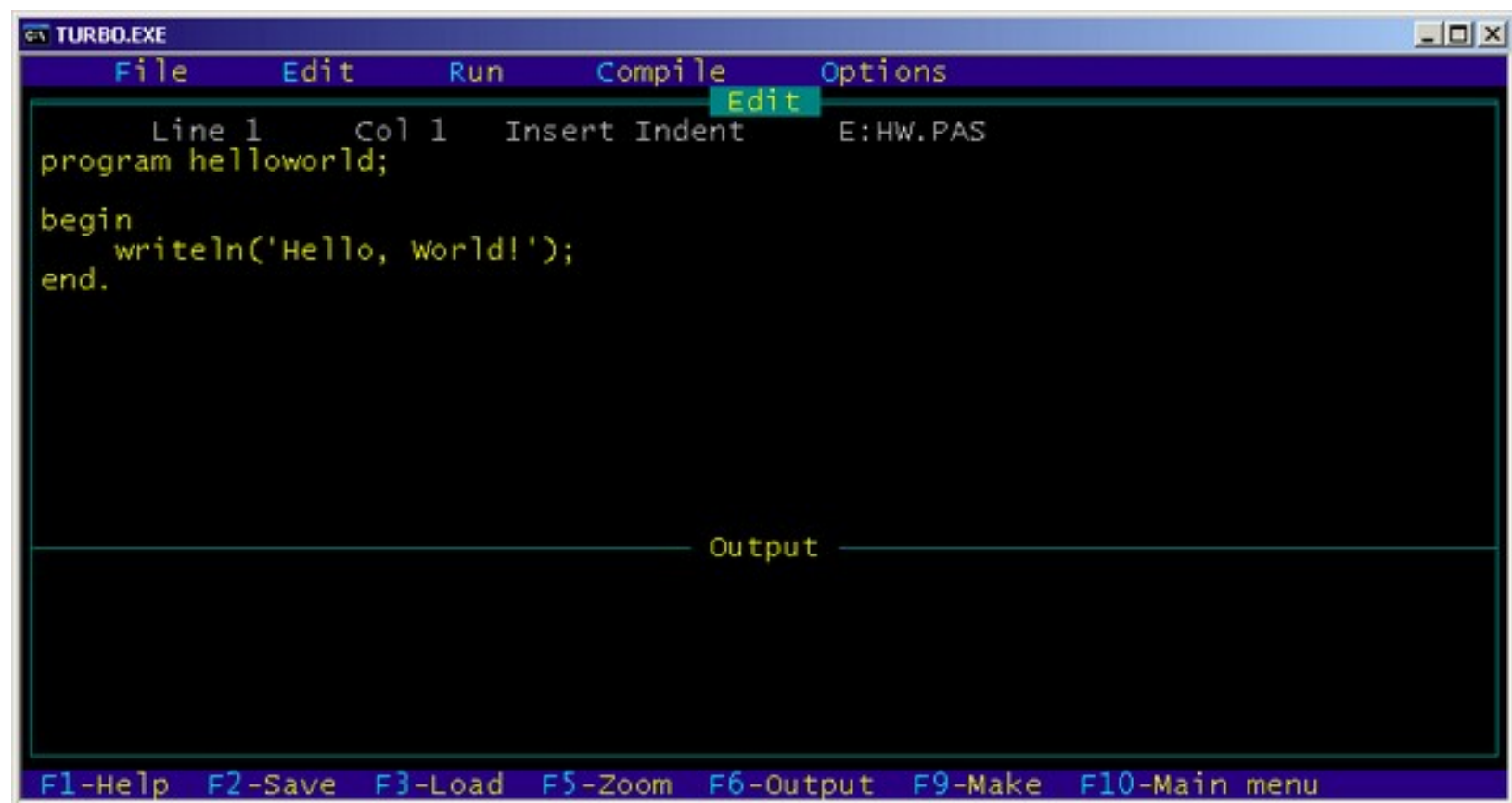
Text Editor used

- Examples of few editors include Windows Notepad, OS Edit command, Brief, Epsilon, EMACS, and vim or vi.
- Name and version of text editor can vary on different operating systems. For example, Notepad will be used on Windows and vim or vi can be used on windows as well as Linux or UNIX.
- The files you create with your editor are called source files and contain program source code.
- The source files for Pascal programs are typically named with the extension .pas.

```
File Edit Run Compile Options Debug Break/watch
Edit
Line 15 Col 39 Insert Indent Unindent * D:NONAME.PAS
program KenLovesTurboPascal;
uses
  crt;
var
  age: Integer;
  name: String;
  message: String;
begin
  ClrScr;
  name := 'Ken Egozi';
  age := 30;
  if age < 10 then
    message := ' loves Turbo Pascal'
  else
    message := ' loved Turbo Pascal';
  write (name);
  writeln (message);
end.
```

Watch

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu



The image shows a screenshot of the Turbo Pascal IDE window titled "TURBO.EXE". The menu bar includes "File", "Edit", "Run", "Compile", and "Options", with "Edit" highlighted. The status bar at the top shows "Line 1", "Col 1", "Insert", "Indent", and "E:HW.PAS". The main text area contains the following Pascal code:

```
program helloworld;  
begin  
  writeln('Hello, world!');  
end.
```

Below the code editor is an "Output" window, which is currently empty. The bottom status bar displays function key shortcuts: "F1-Help", "F2-Save", "F3-Load", "F5-Zoom", "F6-Output", "F9-Make", and "F10-Main menu".