Automation Testing

Introduction to Angular

A Day in the Life of an Automation Test Engineer

Samuel is working in an organization as an Automation Testing Engineer.

He has been asked to use Angular in his website. To learn more about it, he has to first set up an environment to work with Angular.

To achieve the above with some additional features, he will learn the basics of Angular, including Typescript, Angular CLI commands, and key features which will help him to find the solution for the given scenario.

Learning Objectives

By the end of this lesson, you will be able to:

◉ Comprehend Angular and its uses

◉ List the important features of Angular

◉ Describe TypeScript

Angular: Overview

Introduction to Angular

Angular is a TypeScript-based development platform.

It also includes a component-based framework for developing scalable web apps and a set of developer tools for writing, building, testing, and updating code.

Why Angular?

These are the reasons why users should use the Angular framework:

- It is easier to load.

- It features several workflow and performance improvements, as well as many bug fixes and updates.

- It improves performance, resulting in a speedier Angular build, which is especially beneficial for large projects.

- It is ideal for creating micro front-end applications with a small number of dependencies.

Features of Angular

These are some features that make Angular easy to use:

- Cross-platform
- Angular applications
- MVC architecture

Features of Angular

These are some features that make Angular easy to use:

- Less code framework
- Directives
- Virtual scrolling

Features of Angular

These are some features that make Angular easy to use:
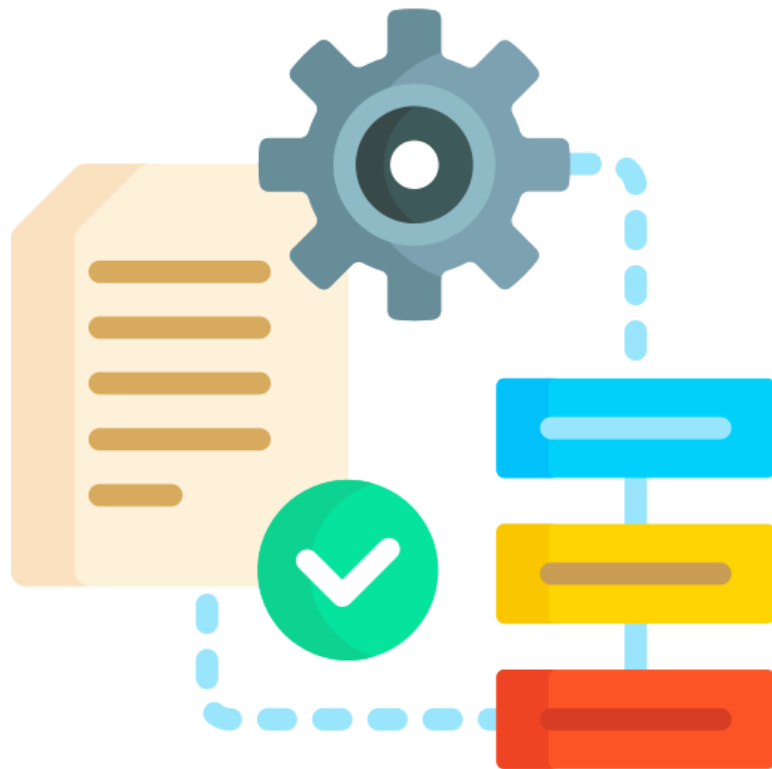
- Angular material
- Angular CLI
- Two-way data binding

Development Environment Setup

Development Environment Setup

These are the steps to set up an Angular development environment:

- Install Node.js and npm
- Install the Angular CLI
- Install the Git CLI
- Install Visual Studio Code
- Run an example Angular application

Development Environment Setup

Commands to verify the installations:

Install Node.js and npm

Install the Angular CLI

Install the Git CLI

Install Visual Studio Code

Run an Angular application

ng --version

Development Environment Setup

Commands to verify the installations:

Install Node.js and npm

Install the Angular CLI

Install the Git CLI

Install Visual Studio Code

Run an Angular application

ng --version

Development Environment Setup

Commands to verify the installations:

Install Node.js and npm

Install the Angular CLI

Install the Git CLI

git --version

Install Visual Studio Code

Run an Angular application

Development Environment Setup

Commands to verify the installations:

Install Node.js and npm

Install the Angular CLI

Install the Git CLI

Install Visual Studio Code

Run an Angular application

Launch VS Code

Development Environment Setup

Commands to verify the installations:

Install Node.js and npm

Install the Angular CLI

Install the Git CLI

Install Visual Studio Code

Run an Angular application

npm start

Creating an Angular Project and Understanding the Project Structure

Problem Statement:

You are required to create an Angular project and understand the project structure.

ASSISTED PRACTICE

Assisted Practice: Guidelines

Steps to create an Angular project and understand the project structure are:

1. Create an Angular project and understand the project structure

TypeScript Tour

TypeScript

TypeScript is the primary language for Angular application development and a JavaScript superset with type safety and tooling assistance at design time.

Basic Syntax of TypeScript

Compare the basic syntax or annotations in Typescript with those in JavaScript

JavaScript	TypeScript
var num = 5;	var num : number = 5;
var num = "Speros";	var num : string = "Speros";
var anydata = 123;	var anydata : any = 123;
var list = [1,2,3];	var list : Array<number> = [1,2,3];

function square(num){
return num * num ;
}
	function square(num : number) : number {
	return num * num ;
	}

Features of TypeScript

TypeScript is portable.

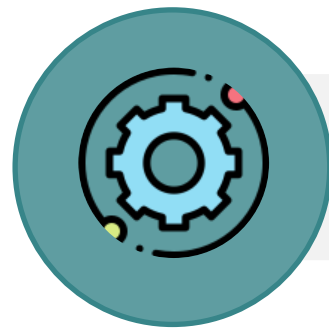TypeScript supports other JS libraries.

It is an object-oriented language.

Features of TypeScript
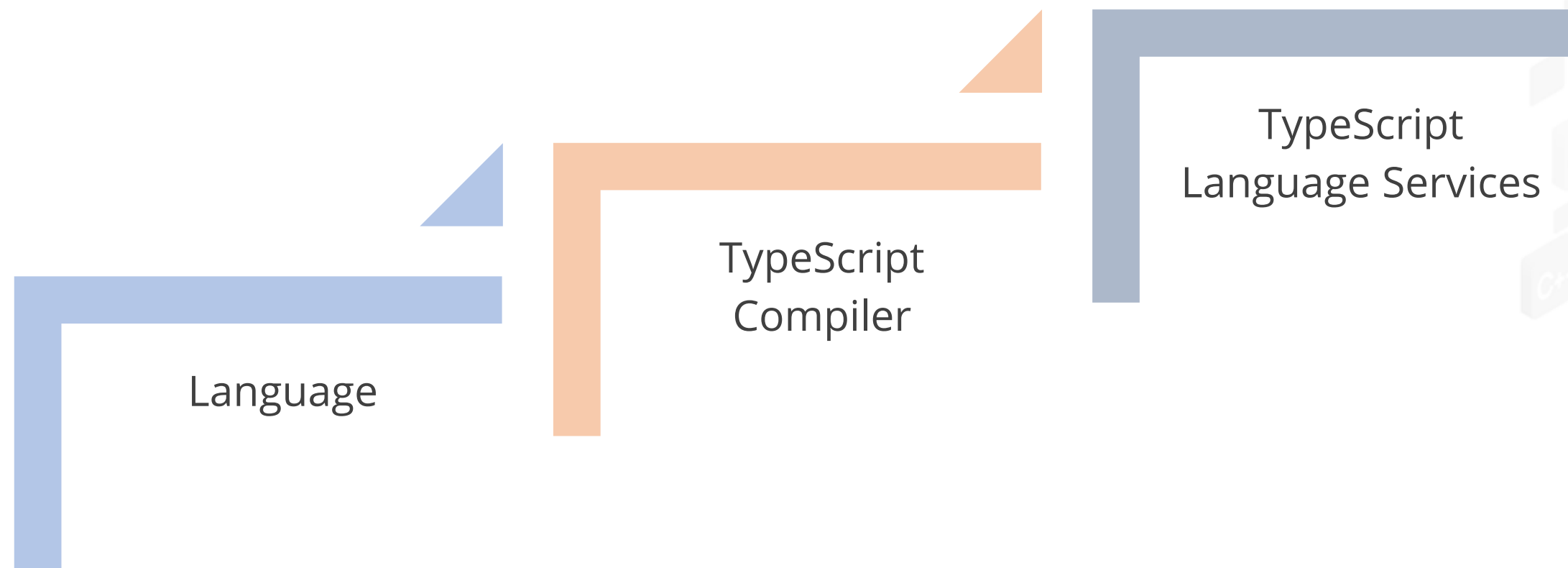
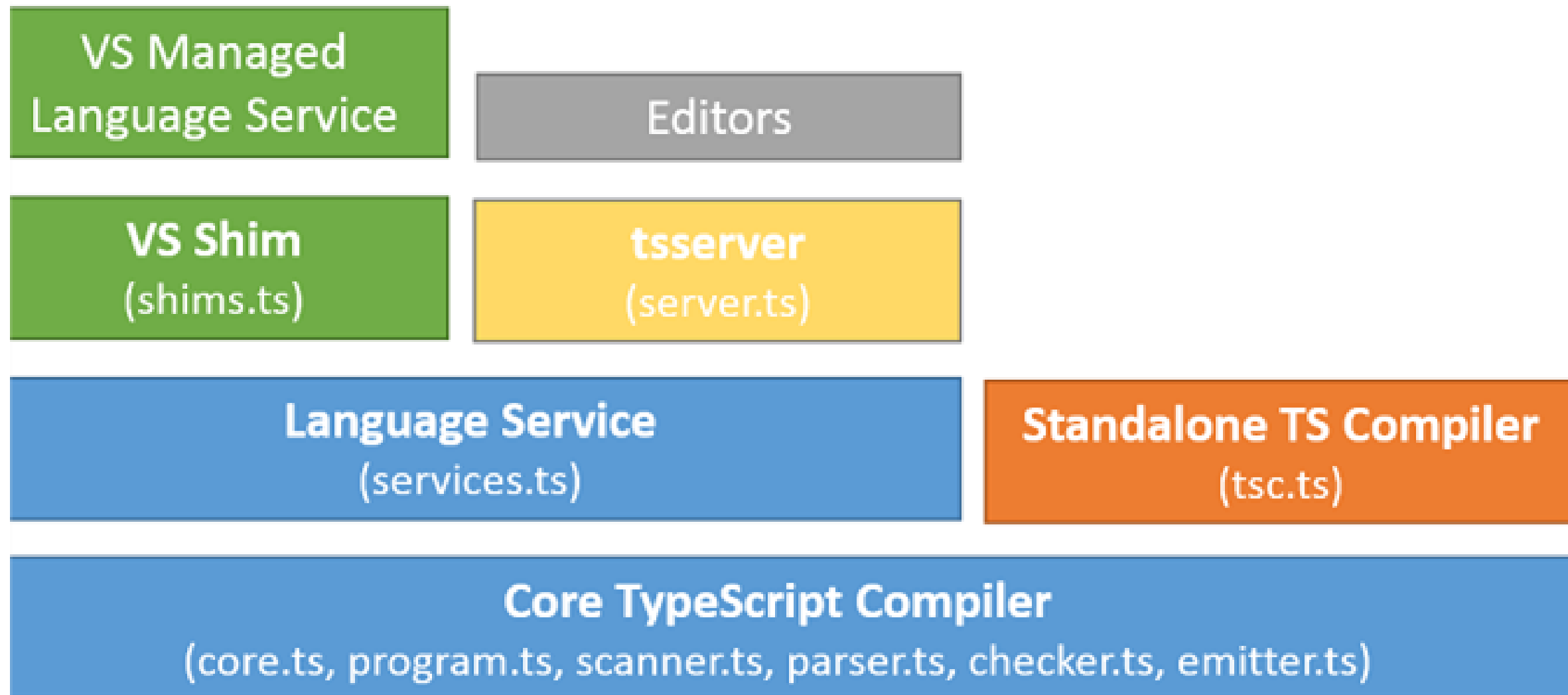TypeScript is just a JavaScript.

It supports DOM manipulation.

Components of TypeScript

Internally, the TypeScript language is separated into three layers, which are:

TypeScript
Language Services

TypeScript
Compiler

Language

Components of TypeScript

Each component's layer is further divided into sublayers or components:

VS Managed Language Service	Editors
VS Shim (shims.ts)	**tsserver** (server.ts)

Language Service (services.ts)	**Standalone TS Compiler** (tsc.ts)

Core TypeScript Compiler
(core.ts, program.ts, scanner.ts, parser.ts, checker.ts, emitter.ts)

simplilearn

Components of TypeScript

Language

- It includes TypeScript language components.

- It includes syntax, keywords, and type annotations, among other things.

TypeScript Compiler

- It converts the TypeScript program into JavaScript code.

- It also converts the TypeScript code to JavaScript code, parses, and type verifies it.
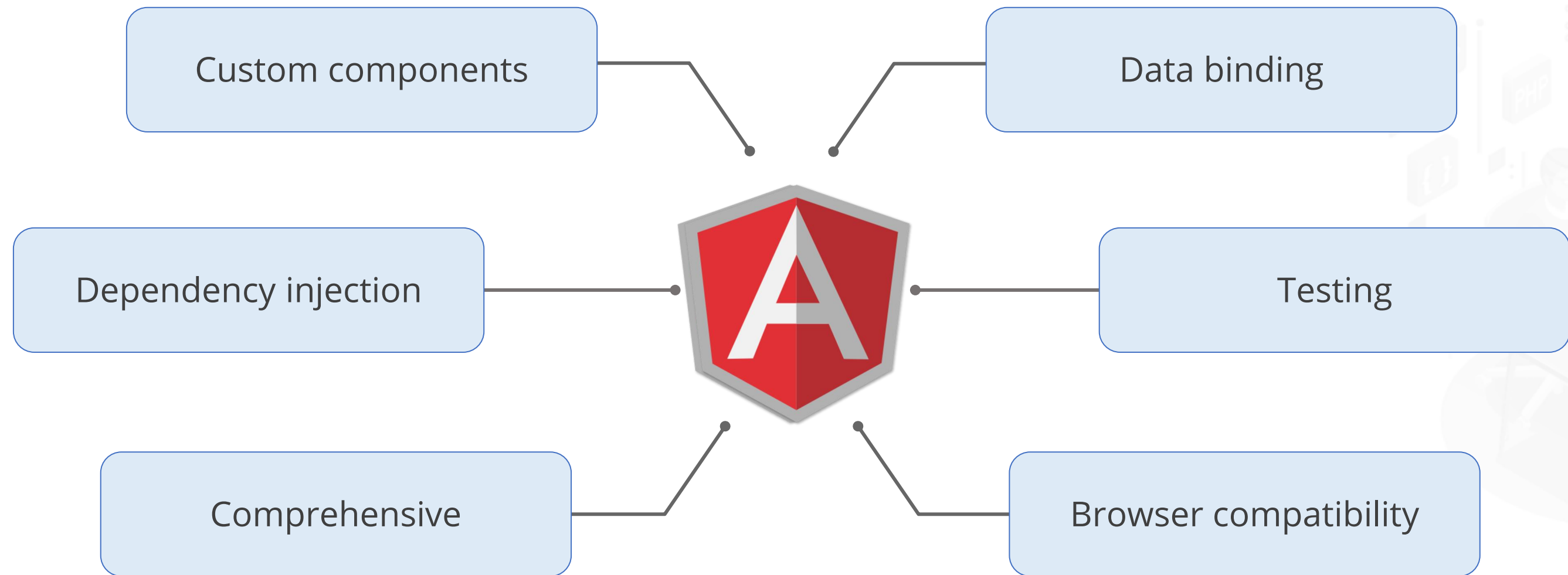
TypeScript Language Services

- It gives data that editors and other applications can use to improve their support functions.

- It supports some standard typical editor operations.

Key Features of Angular Core

Angular Core

The benefits of Angular are as follows:

Custom components

Data binding

Dependency injection

Testing

Comprehensive

Browser compatibility

Angular Core

Custom components

Users can use Angular to create their own components that pack functionality and rendering logic into reusable chunks. It works well with web components as well.
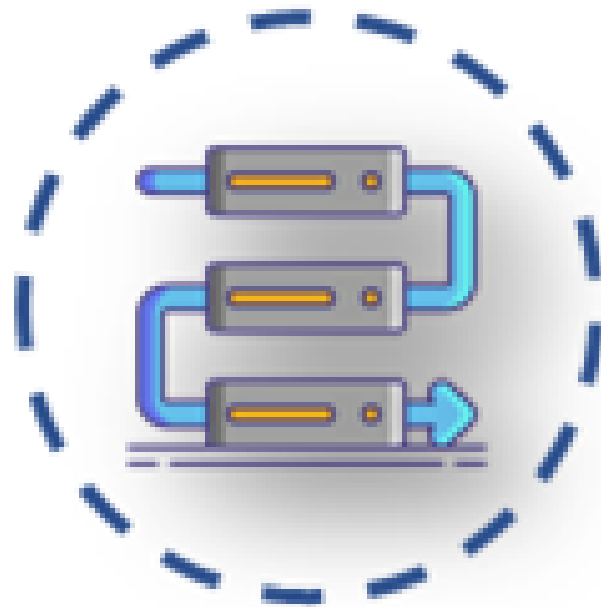
Angular Core

Data binding

Angular allows users to transport data from JavaScript code to the screen and respond to user events without having to create any code.

Angular Core

Dependency injection

Users can write modular services and inject them wherever they're needed with Angular. This makes it easier to test and reuse the same services.

Angular Core

Testing

Tests are first-class tools, and Angular was created with testability in mind from the start. Users will be able to thoroughly test every aspect of their app, which is highly recommended.

Angular Core

Comprehensive

Angular is a full-featured framework that comes with ready-to-use solutions for server connectivity, application routing, and more.

Angular Core

Browser compatibility

Angular is a cross-platform framework that works with a variety of browsers. Angular applications are often compatible with all browsers.

Angular Core Features

01 Cross-platform

02 High speed

03 Optimum performance

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Problem Statement:

You are asked to use Angular CLI commands.

Assisted Practice: Guidelines

Steps to use Angular CLI commands are:

1. Use Angular CLI commands

Key Takeaways

- Angular is a TypeScript-based development platform that includes a component-based framework for developing scalable web apps.

- The TypeScript language is separated into three layers: Language, TypeScript Compiler, and TypeScript Language Services.

- TypeScript is the primary language for Angular application development and a JavaScript superset with type safety and tooling assistance at design time.

- Angular is ideal for creating micro front-end applications with a small number of dependencies.