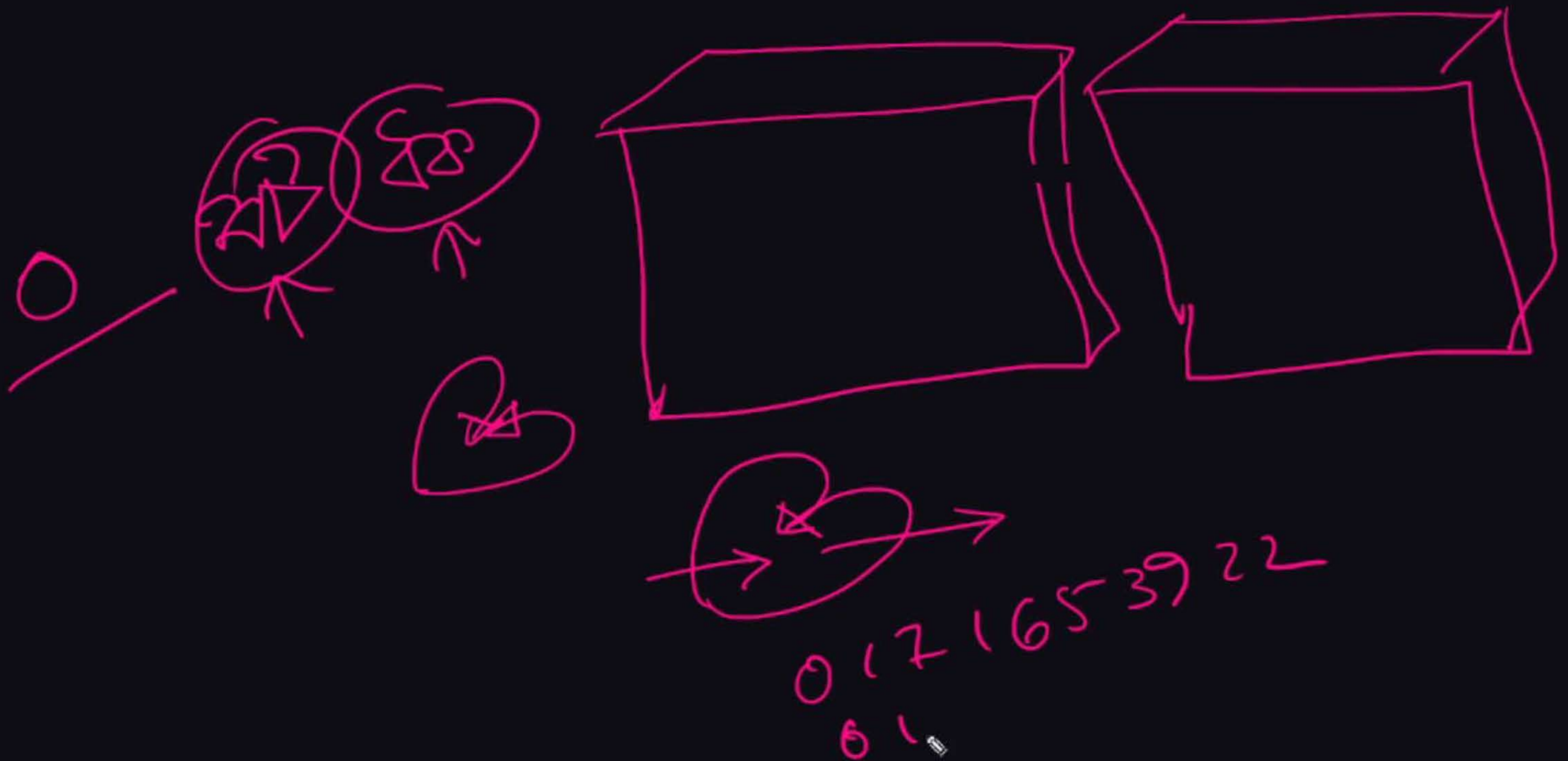
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SLIDE

What really is JavaScript?

JavaScript is a highly abstracted programming language

High Abstraction

User does not know what is happening inside the ATM

1. Hide details

He is simply getting the money by pushing buttons

2. Show functionality

High Abstraction

An abstraction is a way of

- ❑ **hiding the implementation details**
- ❑ **showing only the functionality to the users**

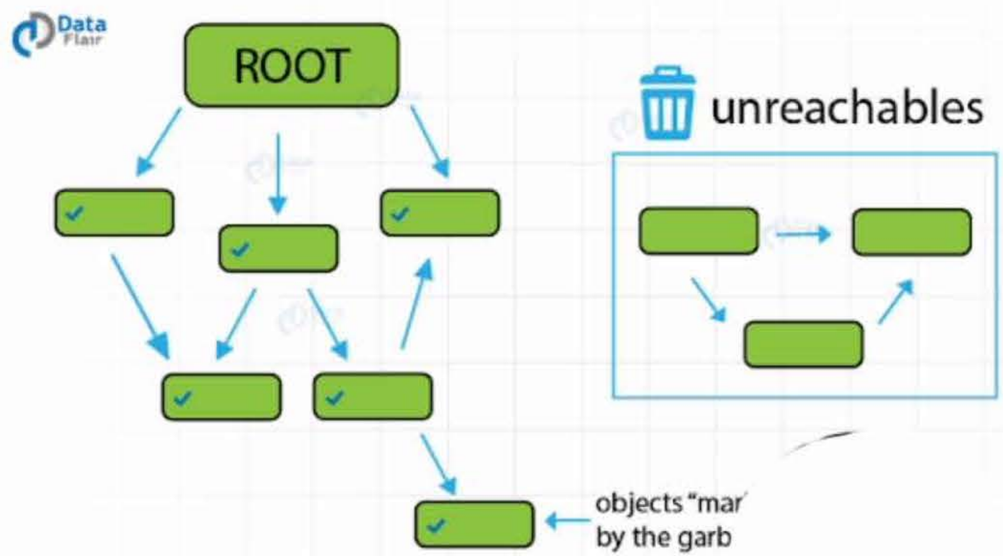
High Abstraction in JavaScript

- ❑ We don’t have to handle resource management and memory allocation
- ❑ We don’t have to handle garbage collection
- ❑ Reduces details so that developers can focus on logic better
- ❑ Improves understandability as well as maintainability of the code

JavaScript collects garbage automatically

Garbage Collection

- JavaScript automatically collects unused data
- free the memory with the help of an algorithm called 'Mark-and-sweep'
- The garbage collector goes through the roots, marking (remembering) them on its way.
- It then moves on to the references and marks them as well.
- The cycle continues until the garbage collector visits all the roots and references.
- The garbage collector removes all the objects, except the marked ones.



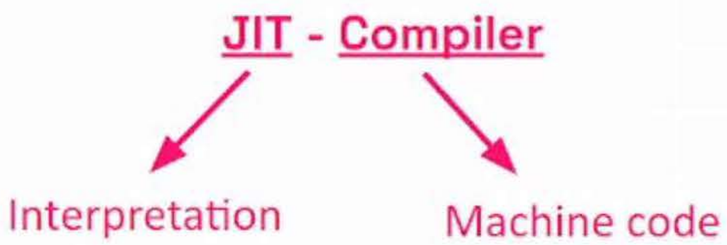
JavaScript is a JIT compiled language

Just-In-Time (JIT)

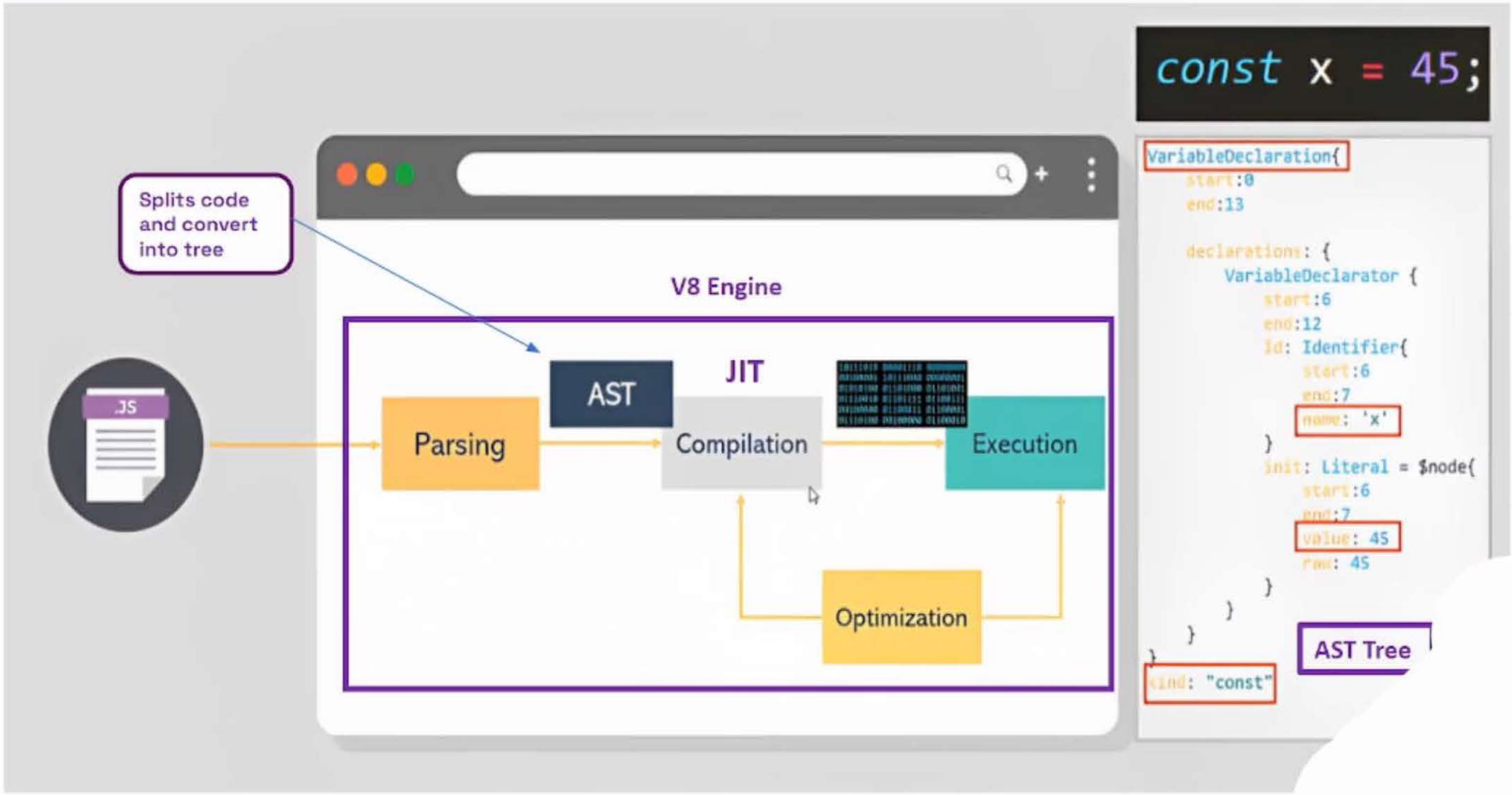
- JavaScript is not a purely interpreted language.

- Modern JavaScript is JIT compiled.

- JUST-IN-TIME compiler converts the entire code into machine code and execute them immediately



Just-In-Time (JIT)



JavaScript is a multi-paradigm programming language

Multi-Paradigm

Paradigm: code structure that will determine the style or a way of programming

1. Procedural Programming

- involves writing down instructions
- tells the computer what it should do step-by-step.

2. Object-Oriented Programming

- modeling a system as a collection of objects.
- Objects contain both functions (or methods) and data.

3. Functional Programming

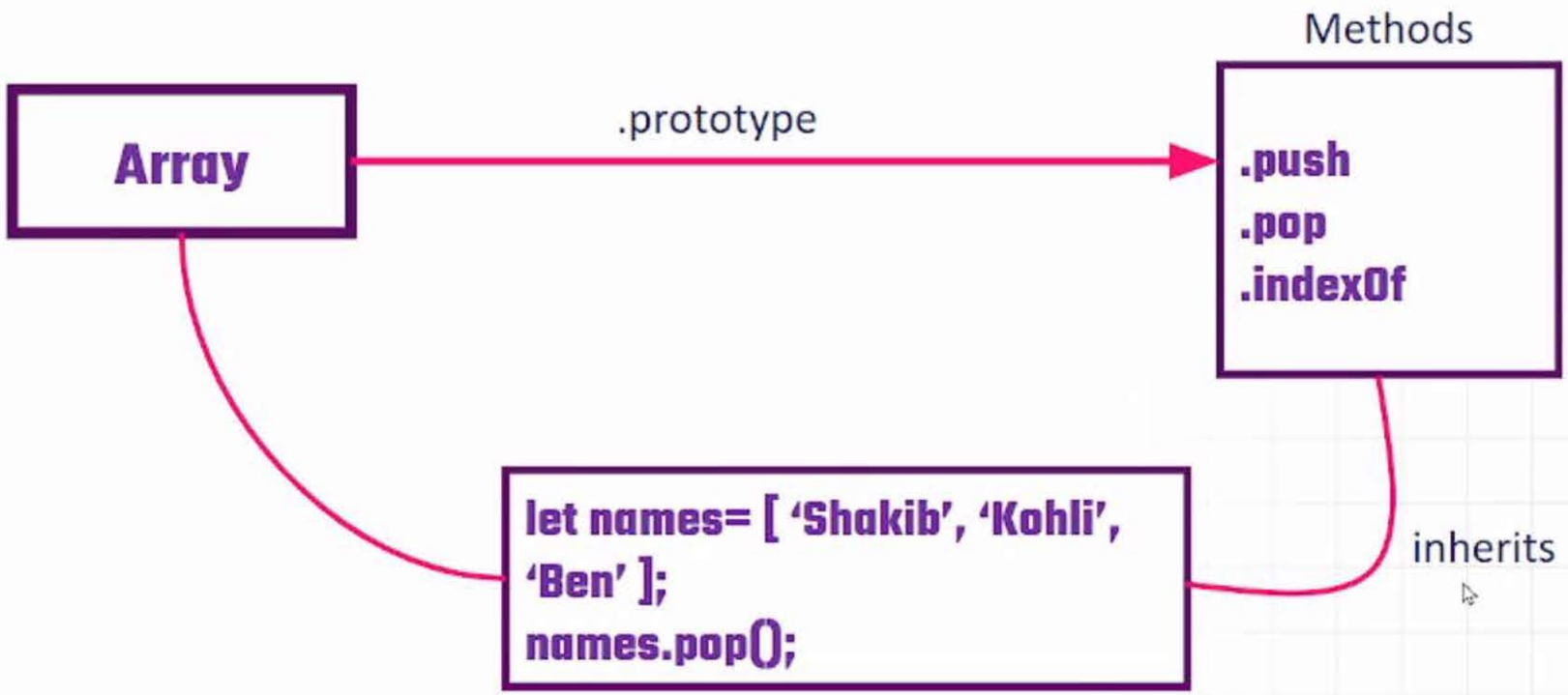
- an approach to software development that uses pure functions
- to create maintainable software.

JavaScript is a proto-typed based programming language

Proto-typed based

- In JavaScript, everything (function, array, objects) is object except the primitive data
- a prototypical object is an object used as a template from which to get the initial properties for a new object
- Proto-type is a blue print

Proto-type


Methods
Array
.prototype
.push
.pop
.indexOf
let names= ['Shakib', 'Kohli', 'Ben'];
names.pop();
inherits

SLIDE

JavaScript is dynamically typed

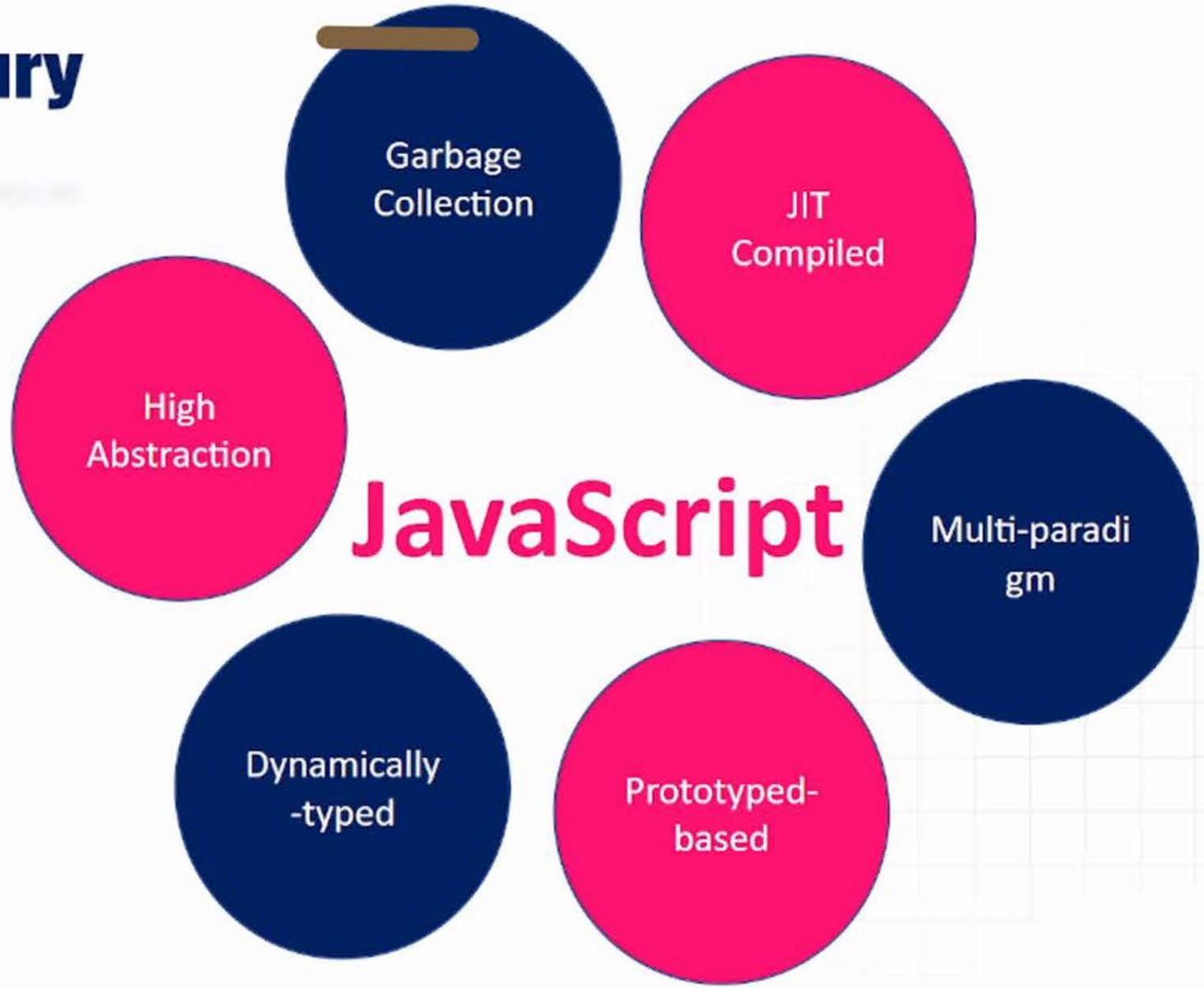
Dynamically-typed

- When you declare a variable, you do not need to specify what type this variable is.
- JavaScript engine infers what type this variable is based on the value assigned to at run time.

```
let temp = 'name';
temp = true;
```

- As JavaScript determines the type at runtime we can re-declare the type

Summary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JIT Compiled
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Multi-paradi gm
Dynamically -typed
Prototyped-based