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# Programming Assignment: Codecs

You have not submitted. You must earn 8/10 points to pass.

**Deadline**

Pass this assignment by Feb 21, 1:59 AM CST

**Instructions** **My submissions** **Discussions**

## Overview

First, download the handout archive and extract it somewhere on your filesystem.

The goal of this assignment is to implement a small serialization library. This library will be able to encode Scala values (such as instances of case classes) into JSON documents that can be sent over the wire (or saved to a file). Conversely, the library will be able to decode JSON documents as Scala values. JSON serialization is often used by web servers.

Please make sure you are familiar with the JSON serialization format before starting the assignment.

The library will follow a "type-directed" approach. This means that it will use a type-class Encoder[A] to model the ability of encoding a value of type A into JSON, and a type-class Decoder[A] to model the ability of decoding a JSON document as a value of type A.

First, you will define given instances for simple types (e.g., Int, String, etc.). Then, you will define conditional instances to combine encoders and decoders together to handle more complex types.

To make things easier, the encoders and decoders implemented in this assignment don't directly work with JSON blobs, but they work with an intermediate Json data type:

```
1  sealed trait Json
2  object Json:
3    /** The JSON `null` value */
4    case object Null extends Json
```