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# Solution Introduction

To make the solution flexible and to cover more different data file format, this solution is built depending on two interfaces: IFieldProcessor and IDataTransformer. IFieldProcessor will process an individual value of a line, and IDataTransformer handles transformation of a whole data file. IDataTransformer depends on a list of IFieldProcessor to process a data file. To process different data format of data file, different IFieldProcessor object can be added to IDataTransformer implementation.

There is two ways to specify rules of which IFieldProcessor need to be added to an implementation of IDataTransformer: in code or by configuration of an xml file.

# IFieldProcessor Interface

IFieldProcessor interface define logic about how to process a single field value in a line. It defines two methods to handle a field value: validate a field value and convert a field value to the correct value to save to database.

Currently following validation are supported by the solution, and more validation logic can be implemented for further requirement.

A field value is required or an option.

A field value must be one of the possible values.

A field value must be a specific data type.

There are a few implementations o IFieldProcessor in the solution, more can be added for new scenarios of rules about converting a field value from source file to target file.

RequiredFieldProcessor: A Field must be existed in source file and the value cannot be null.

OptionFieldProcessor: A Field can be missing in source file or A field existing in source file but the value is empty.

EnumFieldProcess: A field value in the source file will be replaced with a new value in the target file.

IdAccountNoProcessor: The value for the target file will be extracted from the value in the source file.

# IDataTransformer Interface

IDataTransformer interface defines methods to transform a source data file to a target data file. It defines three methods:

ValidateData: Validate a source data file.

Transform: Transform validated line of source file to a target line of data (in the format of an object).

GetResult: Return the result in the correct format of requirement. In the solution, it is a CSV file with header line.

# Running Application

Class DataTransformRunner is used to execute a task of transform a source file to a target file. This solution consider every transformation from source file to target file as a command. A DataTransformRunner object will read the source file, using a IDataTransformer object to validate and transform the source file, and return the validation and transform result.

# Testing

A few tests have been created for the solution. To fully testing the solution, more tests need to be created to cover more scenarios.

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