

1 Integration Services

This section deals with the *SSIS Integration Services* part of the hands on. The image 1 shows the implemented *Control Flow*. The container *Database Preparation Sequence* holds the components for drop create the warehouse tables which was useful during the development.

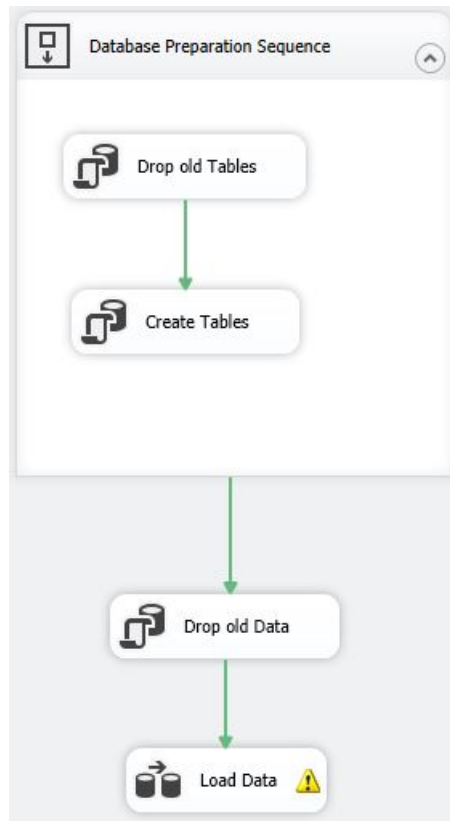


Abbildung 1: Integration Service Control Flow

The following listing describes the components in the control flow:

- *Drop old Tables* component drops the existing warehouse tables.
- *Create tables* component creates the warehouse tables via an native SQL statement.
- *Drop old Data* component drops the old data before data load.
- *Load Data* component holds the data flow for data cleanup and restructure.

The yellow warn icon is caused by data type changes between the raw data and the prepared data. the data type change is caused by the change of the length of some *nvarchar* typed columns.

The image shows the implemented *Data Flow* for the data preparation of the raw data of table *exam* which will be represented by the table *exam* in the warehouse.

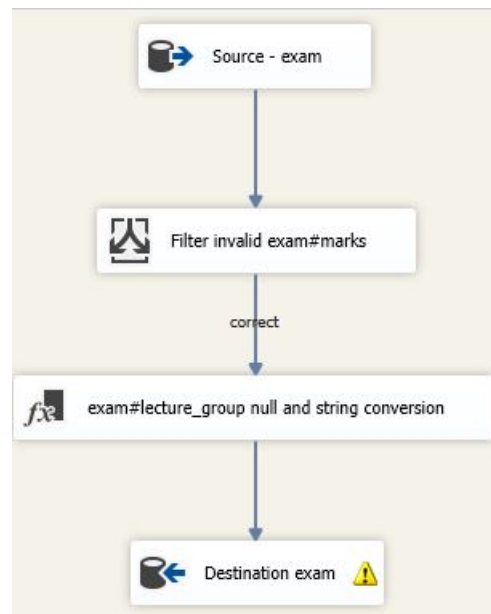


Abbildung 2: Integration Service Data Flow for *exam*

The following listing describes the used *Data Flow* components for data preparation of the table *exam*.

- *Source - exam* is a source component and connects to the table *exam* of the raw data.
- *Filter invalid exam# marks* is the *Conditional Split* component which filters the data for valid and invalid marks.
- *exam# lecture_group null and string conversion* is the *Derived Column* component which transforms the following transformations
 - Create the new column *lecture_group_str* on stream of type *DT_WSTR, 10*)
 - Set the value by the following expression
`!ISNULL(lecture_group)?("Group" + (DT_WSTR,10)lecture_group) : " unknown"`
- *Destination exam* is the *OLE DB Destination* component which stores the prepared raw data in the destination table *exam*.

The yellow warn icon is caused the change of the data type of the column *student_sex* from *nvarchar(2)* to *nchar(1)*

The image shows the implemented *Data Flow* for the data preparation of the raw data of table *lehrer_prod* which will be represented by the table *teacher* in the warehouse.

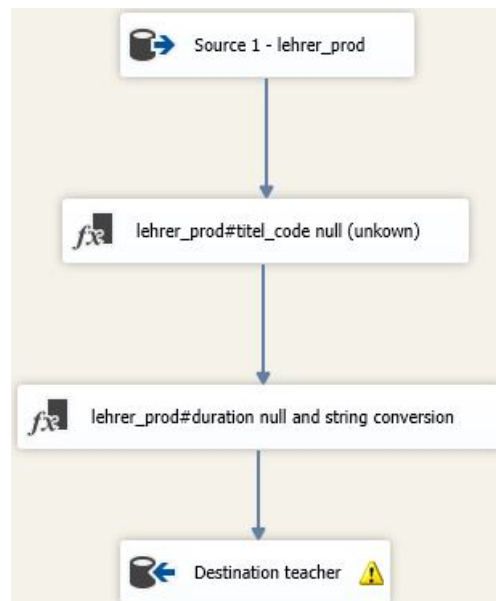


Abbildung 3: Integration Service Data Flow for *lehrer_prod*

The following listing describes the used *Data Flow* components for data preparation of the table *teacher*.

- *Source - lehrer_prod* is a source component and connects to the table *lehrer_prod* of the raw data.
- *lehrer_prod# duration null and string conversion* is the *Derived Column* component which transforms the following transformations
 - Create the new column *duration_str* on stream of type *DT-WSTR, 10*)
 - Set the value by the following expression
`!ISNULL(duration)?"Duration" + (DT-WSTR,10)duration : " unknown"`
- *Destination teacher* is the *OLE DB Destination* component which stores the prepared raw data in the destination table *teacher*.

The yellow warn icon is caused the change of the data type of the column *sex* from *nvarchar(255)* to *nchar(1)*

The image shows the implemented *Data Flow* for the data preparation of the raw data of table *teacher_group* which will be represented by the table *teacher_group* in the warehouse.

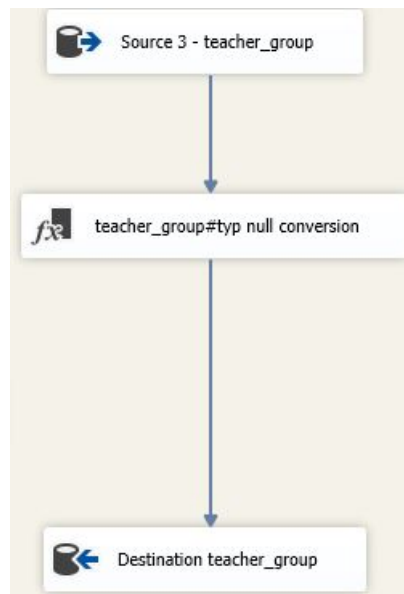


Abbildung 4: Integration Service Data Flow for *teacher_group*

The following listing describes the used *Data Flow* components for data preparation of the table *teacher_group*.

- *Source - teacher_group* is a source component and connects to the table *teacher_group* of the raw data.
- *teacher_group# typ null conversion* is the *Derived Column* component which transforms the following transformations
 - Set the value by the following expression
`REPLACENULL(typ,"unknown")`
- *Destination teacher_group* is the *OLE DB Destination* component which stores the prepared raw data in the destination table *teacher_group*.

This tables holds no null values and therefore are no other transformation necessary.

The image shows the implemented *Data Flow* for the data preparation of the raw data of table *student_group* which will be represented by the table *student_group* in the warehouse.

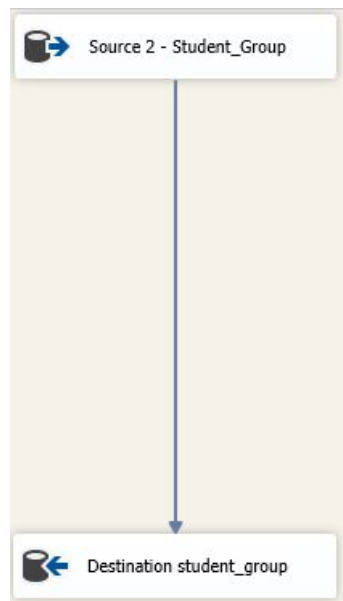


Abbildung 5: Integration Service Data Flow for *student_group*

The following listing describes the used *Data Flow* components for data preparation of the table *student_group*.

- *Source - student_group* is a source component and connects to the table *student_group* of the raw data.
- *Destination student_group* is the *OLE DB Destination* component which stores the prepared raw data in the destination table *student_group*.

This table doesn't require any transformation of the data.

2 Analysis Services

This section deals with the *SSAS Analysis Services* part of the hands on.