Application of **SSRS** for Automating Regular Reports

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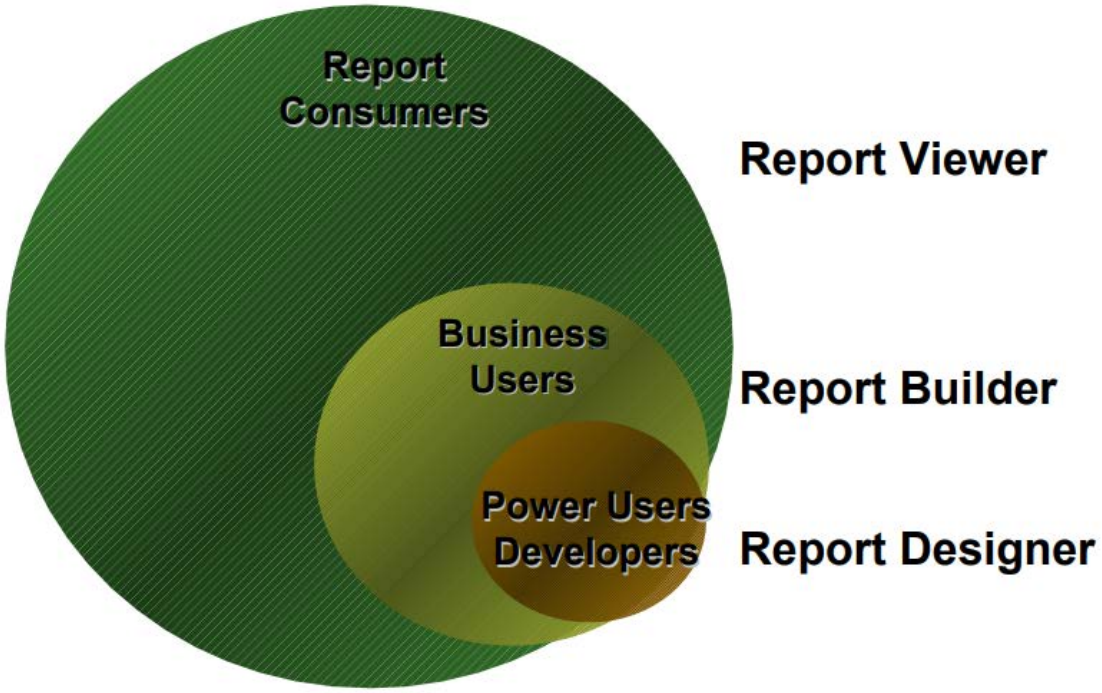
What is SSRS?

- SSRS is really nothing more than a website that hosts web-based reports.
  - It can be made public, or kept internal to your intranet.
- If you want to show basic tabular reports and graph reports in a web browser

➢**This is your tool of choice.**

Why Report Builder?



- One of the primary reasons that organizations implement Reporting Services is to provide managed reports to a large number of internal users

SSRS Report Types:

- **Managed Report:**
  - detailed operational data.
  - gathered from a variety of data sources.
  - organized into a central repository.
  - Standard formatting.
- **Ad hoc Report**:
  - Report builder
  - Users with limited technical skills.
  - Simple reports saved privately or shared.
- **Embedded Report:**
  - portals or custom applications.

Report Access

- The most common way to use a browser and navigate to a central report repository.
- Portal application with links to guide users to reports in Reporting Services.
- Store a selection of reports in a personal folder.
- Subscription to a report to receive it on a scheduled basis in an e-mail inbox, a network file share, or a SharePoint document library.
- A report rendered in HTML, PDF, TIFF, CSV or XML.

Advantages:

- Automation of regular reports requested by users
- Easily create : Tables, Charts, Crosstabs
- Integrate the reporting with SQL
- Easily create Parameters - b/c parameters can be created easily using SQL.
- Unlike other reporting tools which have their own custom based language.
- Create a long paginated report
- Easily exportable to any format: Eg. Excel , PDF and MS Word

Types of Reports

“Let your DATA tell us your story”.

Example

- https://utsacloud.sharepoint.com/sites/vpie/vpaieOIR/subSite_biCenter/SitePages/Home.aspx
- http://bireporting/PBIRS/Pages/ReportViewer.aspx?/All_Users/College%20Profile
- http://bireporting/PBIRS/Pages/ReportViewer.aspx?/All_Users/Fact_Book_StudentEnrollment

What is Power BI Report Server?

- https://docs.microsoft.com/en-us/power-bi/report-server/get-started

How Do I Install SSRS?

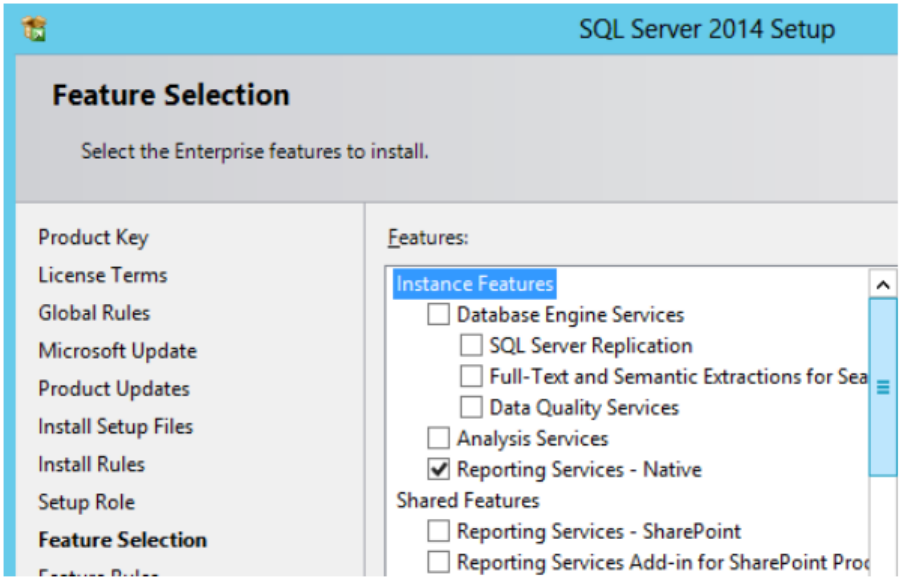
- If you own SQL Server, you own SSRS. SSRS is included in the SQL Server license Standard edition and above:
  - But also including "Express with Advanced Services", however SQL Express in this feature and many is extremely limited.
  - SSRS isn't sold alone, you buy a SQL Server license and you get the database engine, integration services, reporting services, analysis services, agent, etc.
  - The Microsoft Business Intelligence Stack mainly consists of SQL Database Engine, SSRS, SSAS, SSIS and other tools

How Do I Install SSRS?

- SSRS installs from the original SQL Server .iso media you choose Native (standalone) mode or SharePoint integrated mode.

  - Keep in mind that one SQL Server license only allows one SSRS install.

How Do I Install SSRS?

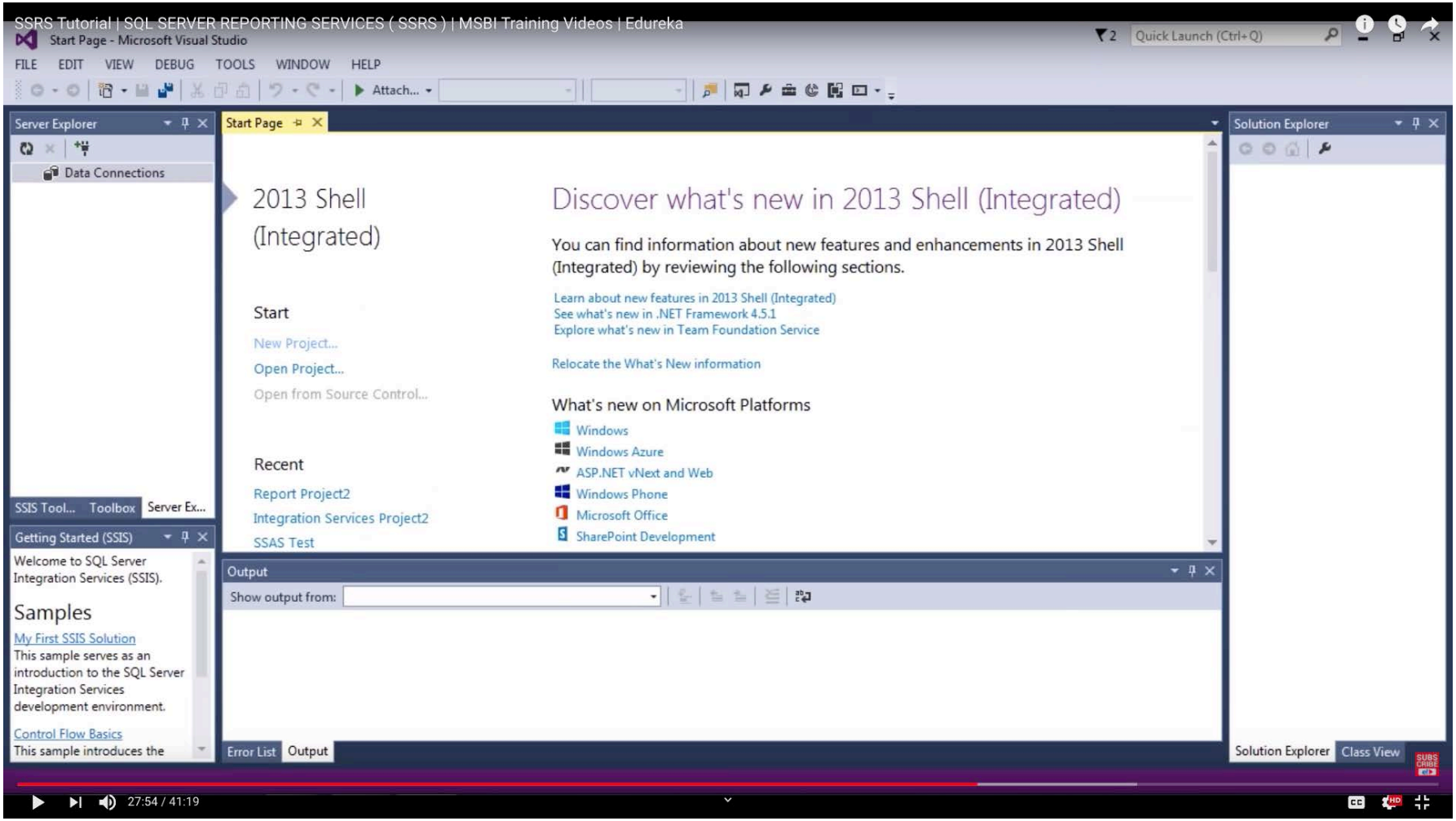


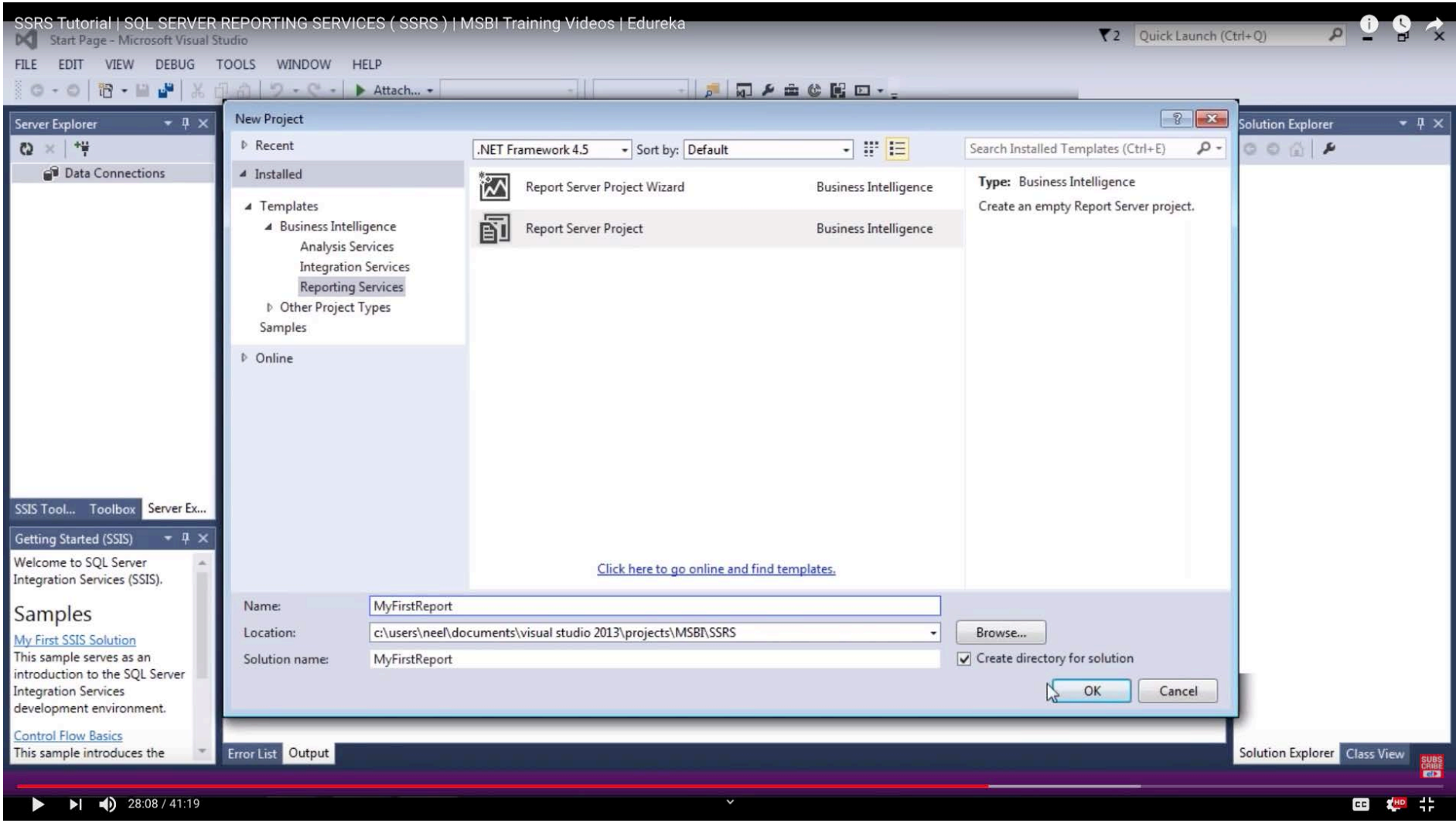
Reporting Life Cycle

- The report from creation to delivery.
- SSRS supports 3 phases of the reporting life cycle:
  - report development.
  - management of the report server.
  - report access by user
- Rendering:
  - reproduce a report in a variety of formats.

Drawbacks:

- Reports are not interactive like power BI and tableau
- You need to use SSRS and Power BI together.


SSRS Tutorial | SQL SERVER REPORTING SERVICES (SSRS) | MSBI Training Videos | Edureka
Start Page - Microsoft Visual Studio
FILE EDIT VIEW DEBUG TOOLS WINDOW HELP
Attach...
Quick Launch (Ctrl+Q)
Server Explorer
Data Connections
SSIS Tool... Toolbox Server Ex...
Getting Started (SSIS)
Welcome to SQL Server Integration Services (SSIS).
Samples
My First SSIS Solution
This sample serves as an introduction to the SQL Server Integration Services development environment.
Control Flow Basics
This sample introduces the
Start Page
2013 Shell (Integrated)
Start
New Project...
Open Project...
Open from Source Control...
Recent
Report Project2
Integration Services Project2
SSAS Test
Discover what's new in 2013 Shell (Integrated)
You can find information about new features and enhancements in 2013 Shell (Integrated) by reviewing the following sections.
Learn about new features in 2013 Shell (Integrated)
See what's new in .NET Framework 4.5.1
Explore what's new in Team Foundation Service
Relocate the What's New information
What's new on Microsoft Platforms
Windows
Windows Azure
ASP.NET vNext and Web
Windows Phone
Microsoft Office
SharePoint Development
Output
Show output from:
Error List Output
Solution Explorer
Solution Explorer Class View
27:54 / 41:19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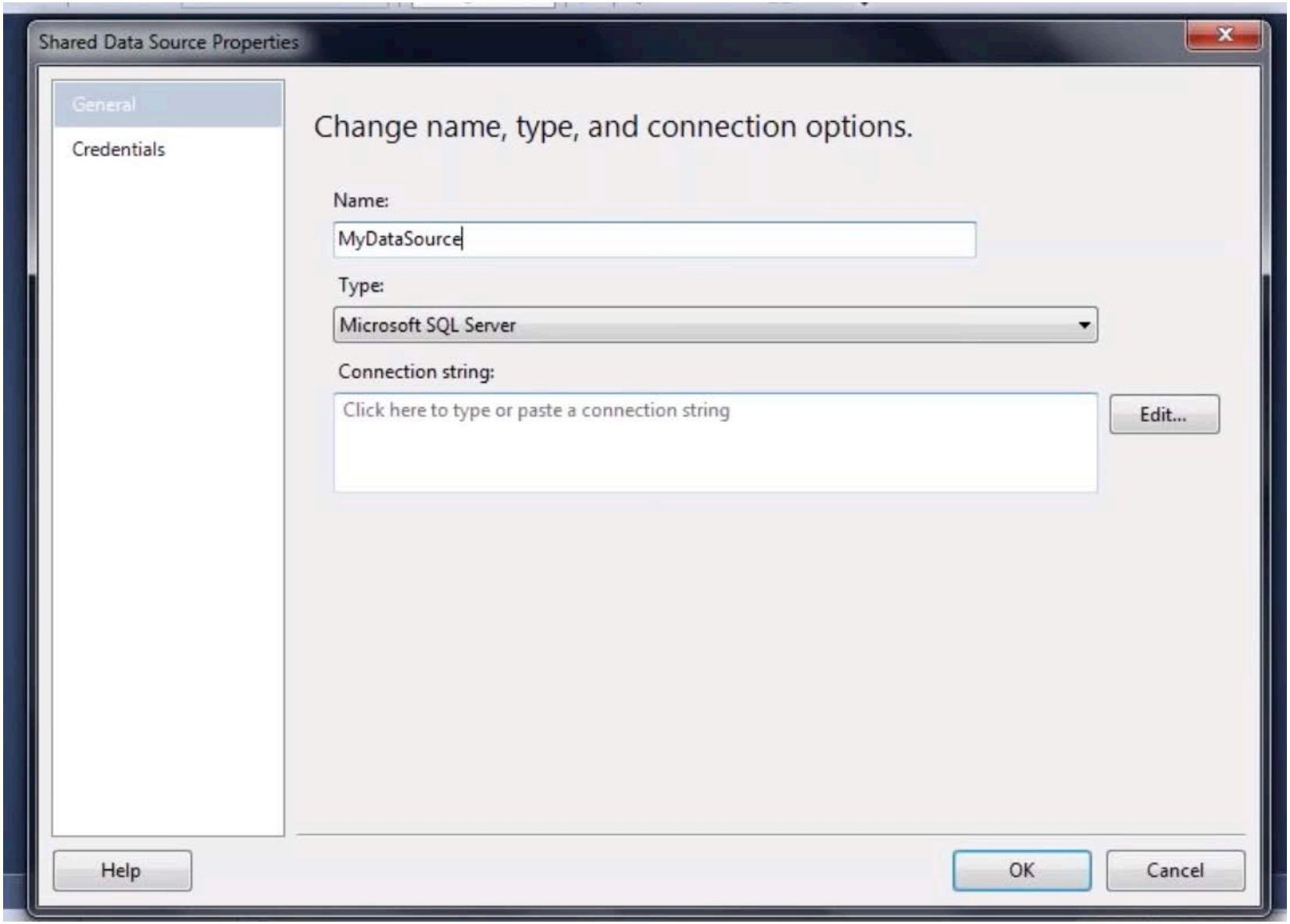
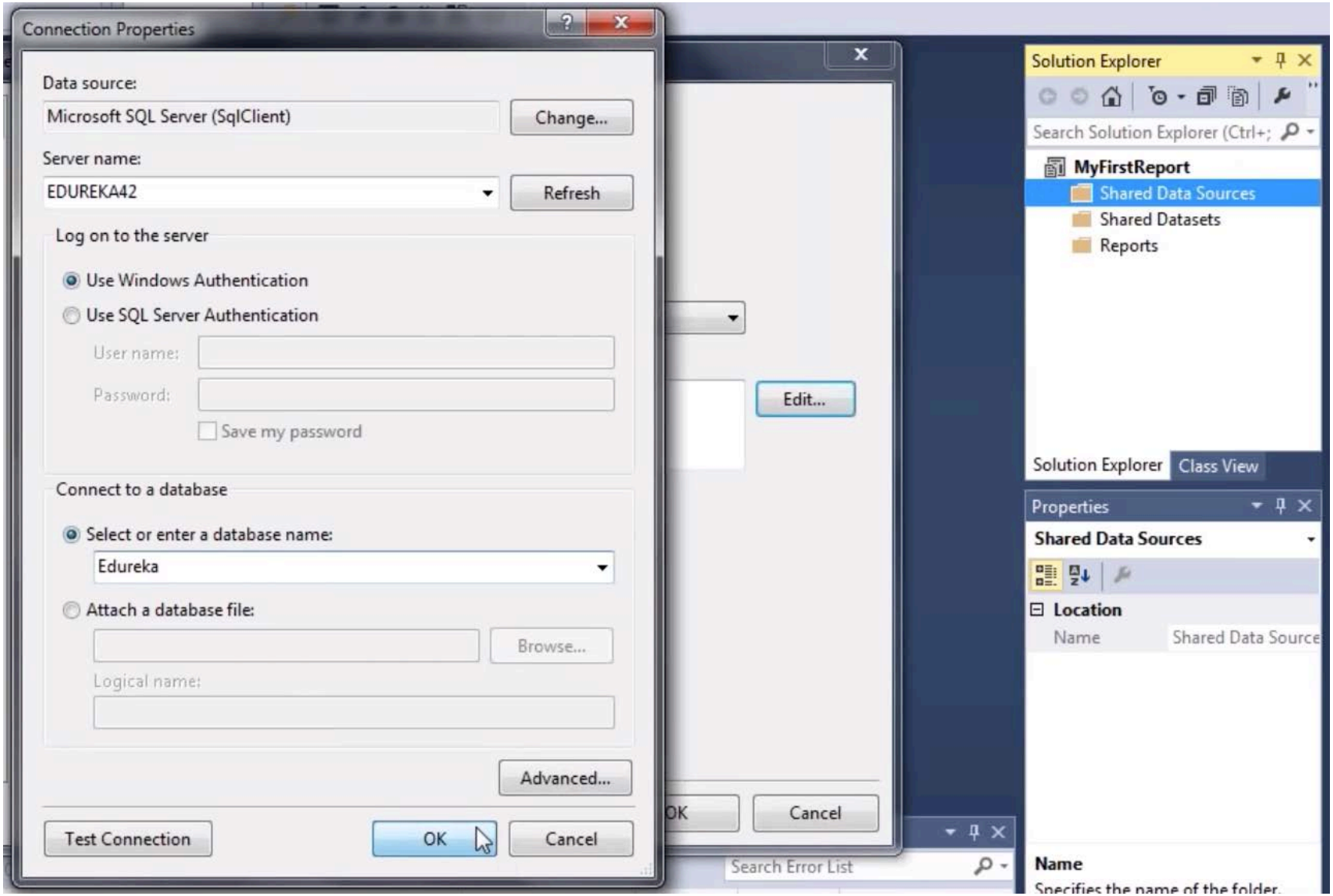
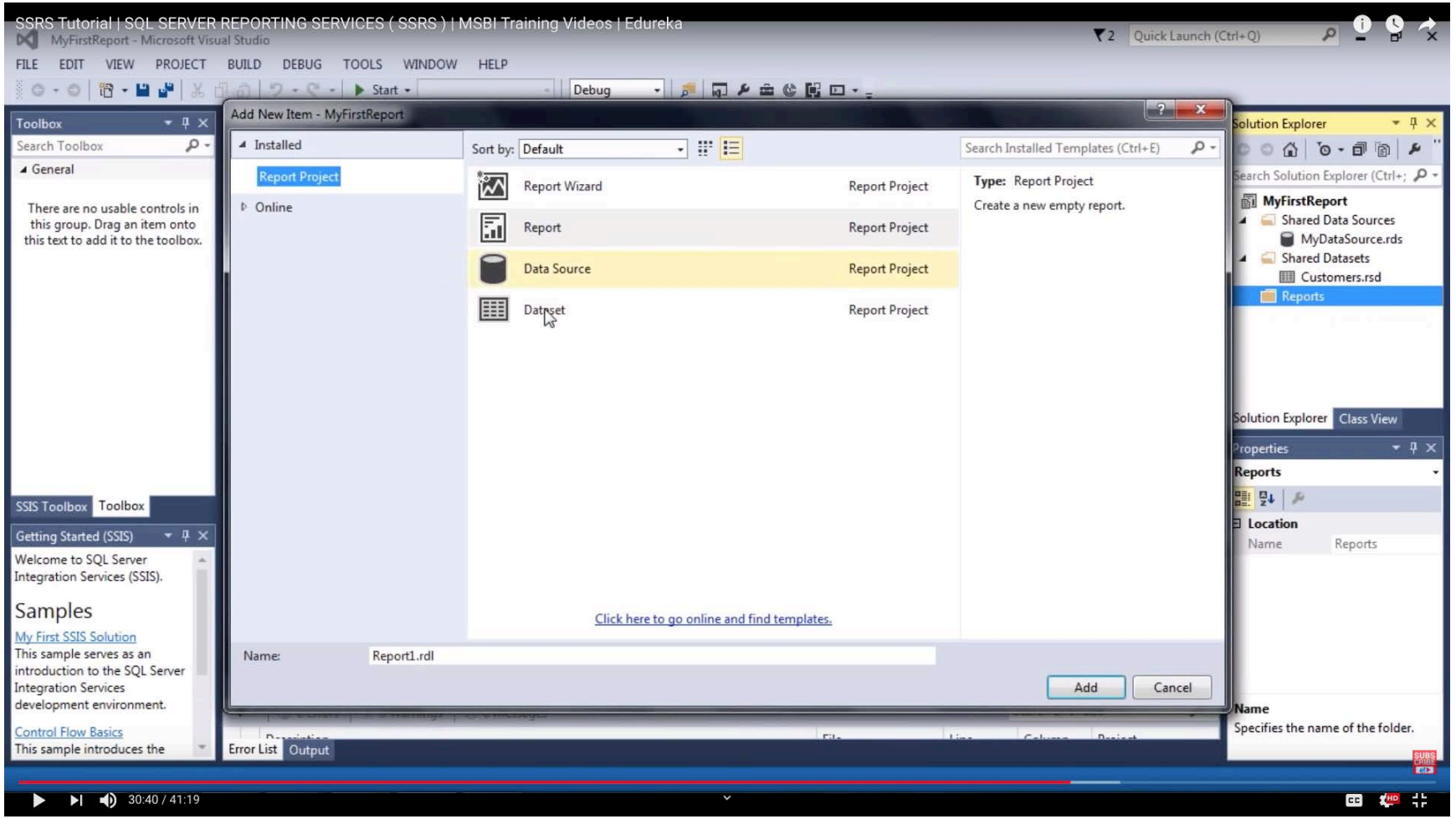
New Project
Recent
Installed
Templates
Business Intelligence
Analysis Services
Integration Services
Reporting Services
Other Project Types
Samples
Online
.NET Framework 4.5
Sort by: Default
Search Installed Templates (Ctrl+E)
Report Server Project Wizard Business Intelligence
Report Server Project Business Intelligence
Type: Business Intelligence
Create an empty Report Server project.
Click here to go online and find templates.
Name: MyFirstReport
Location: c:\users\neel\documents\visual studio 2013\projects\MSBI\SSRS
Browse...
Solution name: MyFirstReport
Create directory for solution
OK
Cancel
Solution Explorer
Error List Output
Solution Explorer Class View
28:08 / 41:19


Shared Data Source Properties
General
Credentials
Change name, type, and connection options.
Name:
MyDataSource
Type:
Microsoft SQL Server
Connection string:
Click here to type or paste a connection string
Edit...
Help
OK
Cancel


Connection Properties
Data source:
Microsoft SQL Server (SqlClient)
Change...
Server name:
EDUREKA42
Refresh
Log on to the server
Use Windows Authentication
Use SQL Server Authentication
User name:
Password:
Save my password
Connect to a database
Select or enter a database name:
Edureka
Attach a database file:
Browse...
Logical name:
Advanced...
Test Connection
OK
Cancel
Edit...
OK
Cancel
Search Error List
Solution Explorer
Search Solution Explorer (Ctrl+;
MyFirstReport
Shared Data Sources
Shared Datasets
Reports
Solution Explorer
Class View
Properties
Shared Data Sources
Location
Name
Shared Data Source
Name
Specifies the name of the folder.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MyFirstReport - Microsoft Visual Studio
FILE EDIT VIEW PROJECT BUILD DEBUG TOOLS WINDOW HELP
Quick Launch (Ctrl+Q)
Toolbox
Search Toolbox
General
There are no usable controls in this group. Drag an item onto this text to add it to the toolbox.
SSIS Toolbox Toolbox
Getting Started (SSIS)
Welcome to SQL Server Integration Services (SSIS).
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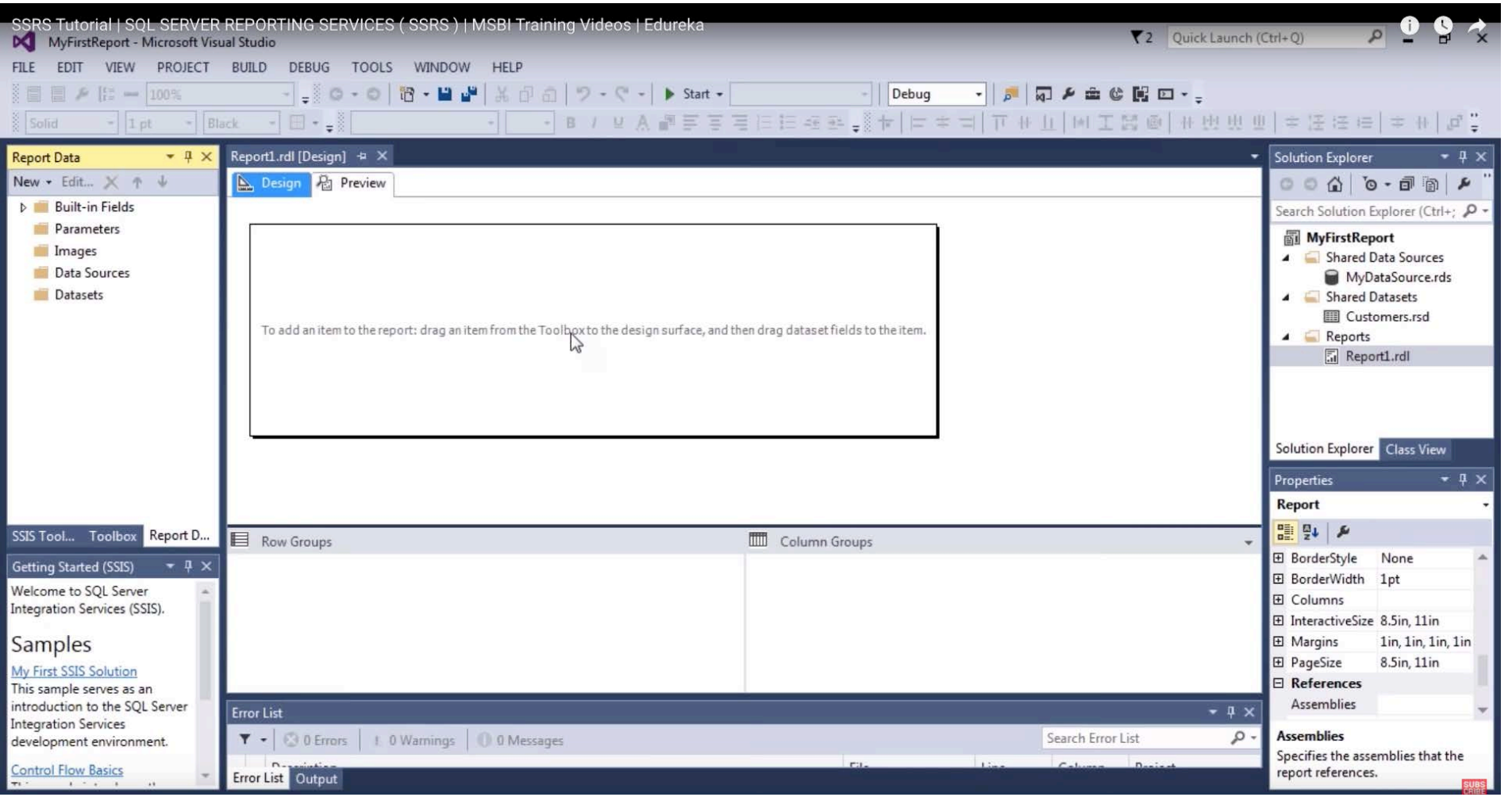
Add New Item - MyFirstReport
Installed
Report Project
Online
Sort by: Default
Search Installed Templates (Ctrl+E)
Report Wizard Report Project
Report Report Project
Data Source Report Project
Dataset Report Project
Type: Report Project
Create a new empty report.
Click here to go online and find templates.
Name: Report1.rdl
Add Cancel
Error List Output
Solution Explorer
Search Solution Explorer (Ctrl+;
MyFirstReport
Shared Data Sources
MyDataSource.rds
Shared Datasets
Customers.rsd
Reports
Solution Explorer Class View
Properties
Reports
Location
Name Reports
Name
Specifies the name of the folder.
30:40 / 41:19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MyFirstReport - Microsoft Visual Studio
FILE EDIT VIEW PROJECT BUILD DEBUG TOOLS WINDOW HELP
Quick Launch (Ctrl+Q)
Start
Debug
Report Data
New Edit...
Built-in Fields
Parameters
Images
Data Sources
Datasets
SSIS Tool... Toolbox Report D...
Getting Started (SSIS)
Welcome to SQL Server Integration Services (SSIS).
Samples
My First SSIS Solution
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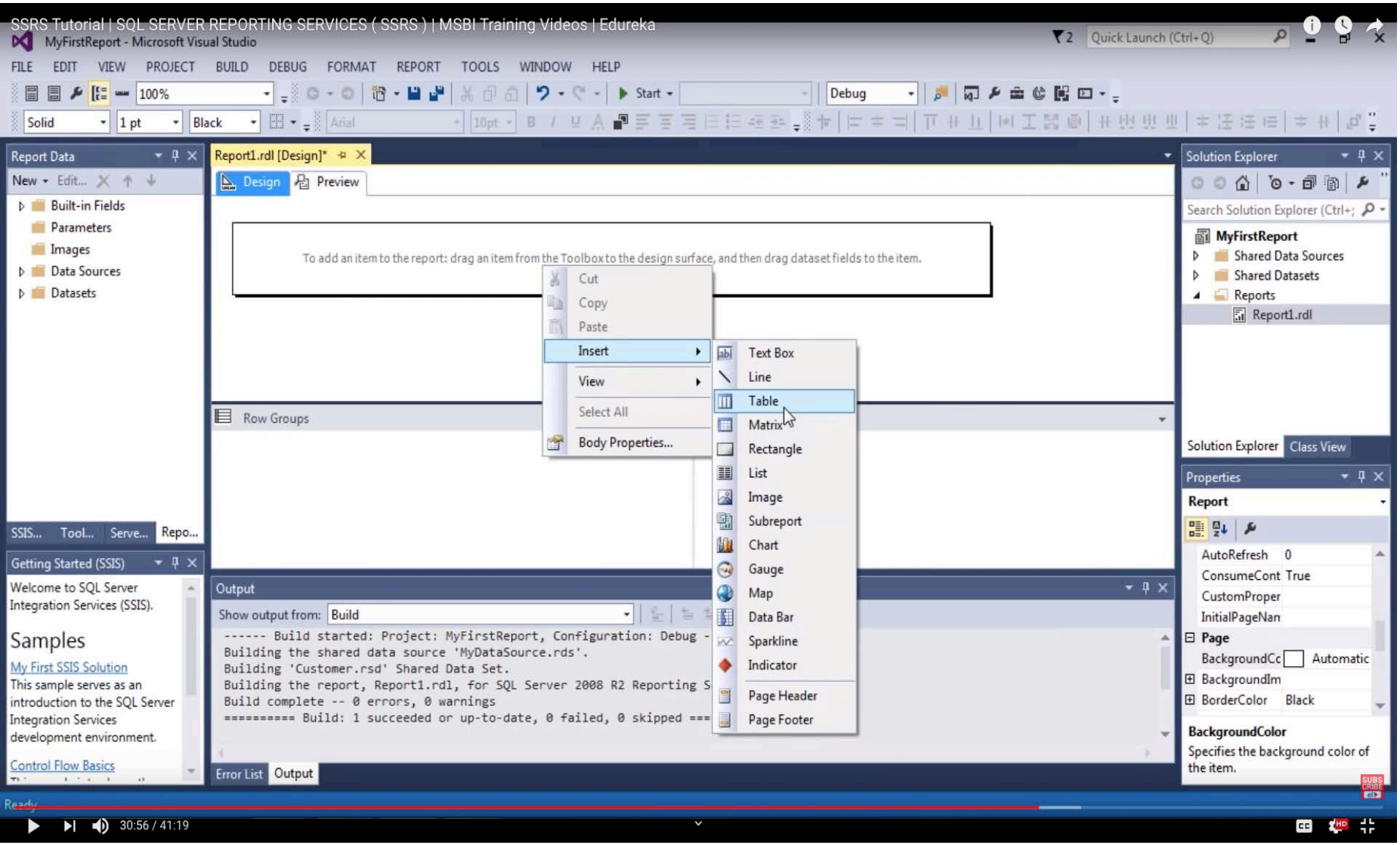
Control Flow Basics
Report1.rdl [Design]
Design Preview
To add an item to the report: drag an item from the Toolbox to the design surface, and then drag dataset fields to the item.
Row Groups
Column Groups
Error List
0 Errors 0 Warnings 0 Messages
Search Error List
Error List Output
Solution Explorer
Search Solution Explorer (Ctrl+;
MyFirstReport
Shared Data Sources
MyDataSource.rds
Shared Datasets
Customers.rsd
Reports
Report1.rdl
Solution Explorer Class View
Properties
Report
BorderStyle None
BorderWidth 1pt
Columns
InteractiveSize 8.5in, 11in
Margins 1in, 1in, 1in, 1in
PageSize 8.5in, 11in
References
Assemblies
Assemblies
Specifies the assemblies that the report references.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MyFirstReport - Microsoft Visual Studio
FILE EDIT VIEW PROJECT BUILD DEBUG FORMAT REPORT TOOLS WINDOW HELP
Report Data
Report1.rdl [Design]*
Design
Preview
To add an item to the report: drag an item from the Toolbox to the design surface, and then drag dataset fields to the item.
Cut
Copy
Paste
Insert
View
Select All
Body Properties...
Text Box
Line
Table
Matrix
Rectangle
List
Image
Subreport
Chart
Gauge
Map
Data Bar
Sparkline
Indicator
Page Header
Page Footer
Row Groups
Solution Explorer
MyFirstReport
Shared Data Sources
Shared Datasets
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Properties
Report
Getting Started (SSIS)
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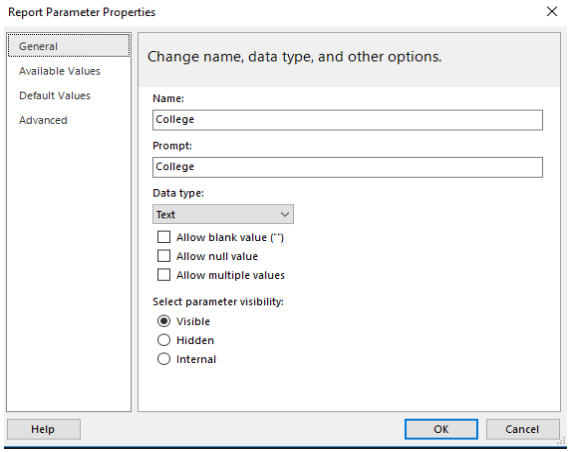
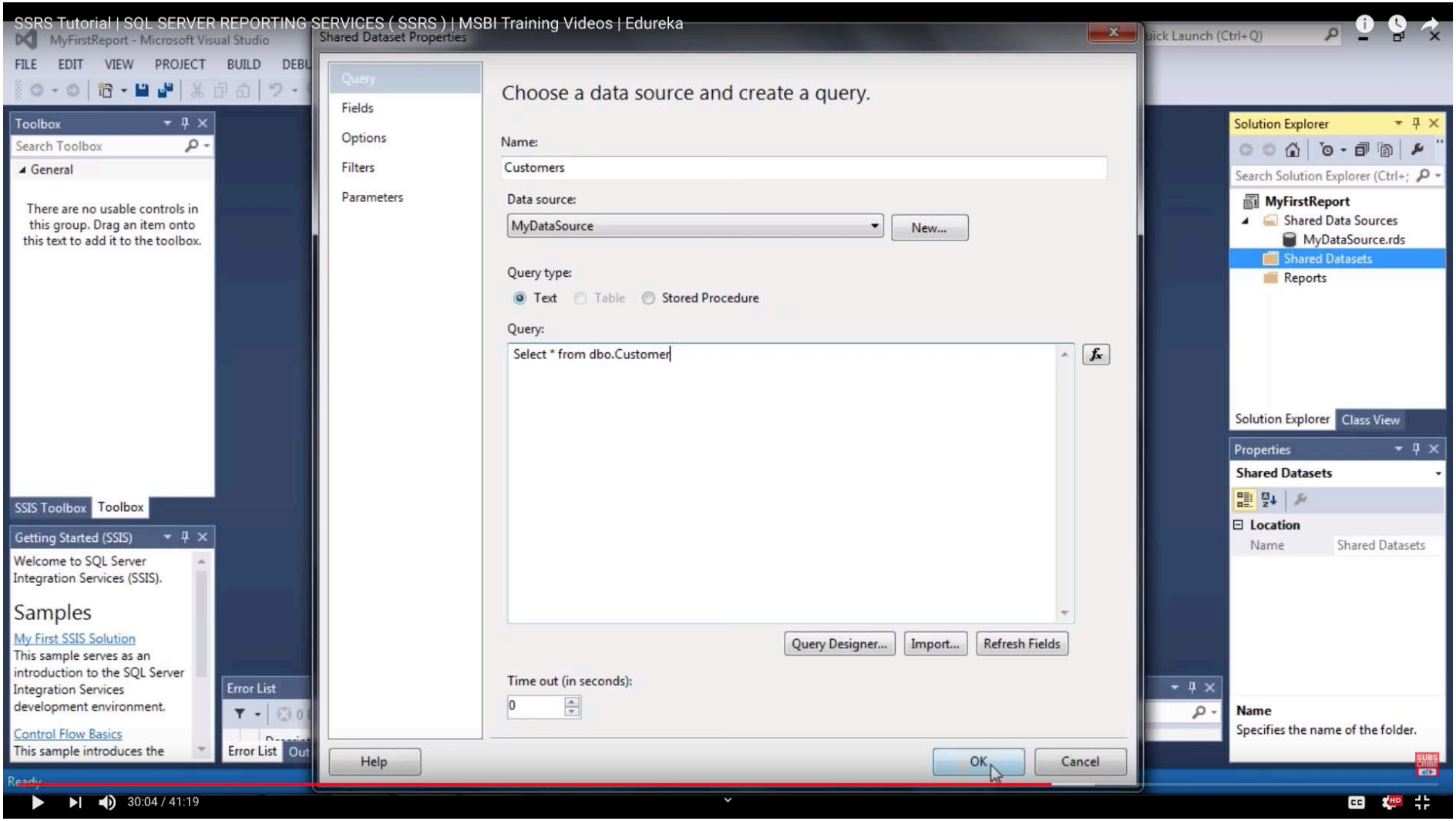
Output
Show output from: Build
Error List
Output
Ready
30:56 / 41:19

How to create parameters in SSRS?

- To create a parameter in SSRS, click the Create Parameter option on the left hand pane in SSRS
- Enter the Parameter name and the Parameter Prompt. In the below screenshot we are creating a parameter for College.

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MyFirstReport - Microsoft Visual Studio
FILE EDIT VIEW PROJECT BUILD
Shared Dataset Properties
Query
Fields
Options
Filters
Parameters
Choose a data source and create a query.
Name:
Customers
Data source:
MyDataSource
New...
Query type:
Text
Table
Stored Procedure
Query:
Select * from dbo.Customer
Query Designer...
Import...
Refresh Fields
Time out (in seconds):
0
Help
OK
Cancel
Toolbox
Search Toolbox
General
There are no usable controls in this group. Drag an item onto this text to add it to the toolbox.
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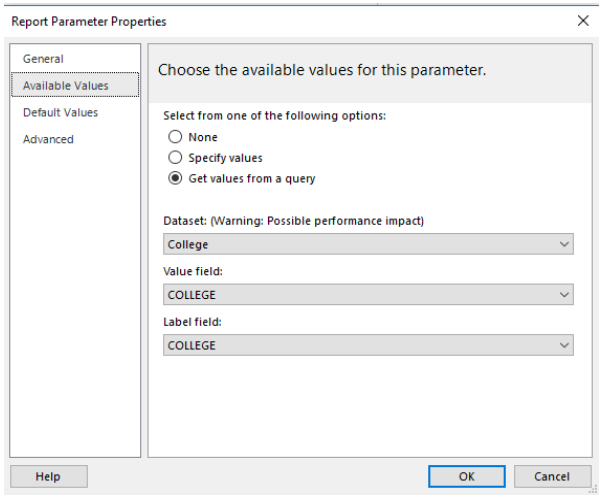
Search Solution Explorer (Ctrl+;)
MyFirstReport
Shared Data Sources
MyDataSource.rds
Shared Datasets
Reports
Solution Explorer
Class View
Properties
Shared Datasets
Location
Name
Shared Datasets
Name
Specifies the name of the folder.
Ready
30:04 / 41:19

How to create parameters in SSRS?

- It is recommended to create a dataset to automate the drop down box for each Parameter.
- In the below screenshot we have created a dataset for the College Parameter and are obtaining the values from the dataset.



How to pass parameters to SQL in SSRS?

- Parameters need to passed sometimes to SQL in SSRS in order to reduce the size of the dataset
- The below is the syntax for passing parameters from Oracle or SQL Server to SSRS.

Syntax:

- WHERE (:College =' All' or COLLEGE_NAME = :College) (In Oracle SQL)
- WHERE (@College =' All' or COLLEGE_NAME = @College) (In SQL Server)

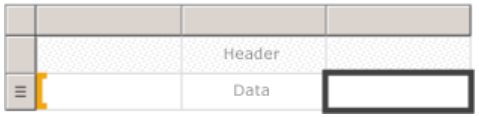
Data Regions

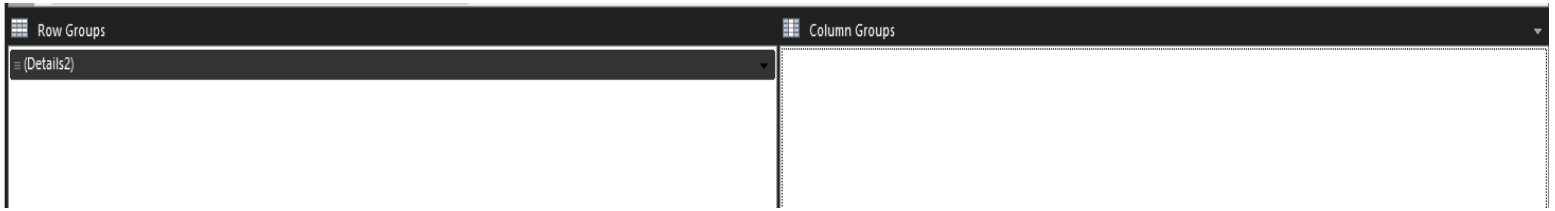
- A data region is a layout element that displays data from a single dataset in a Reporting Services paginated report.
- Some of the important data regions in SSRS are:

1. Table
2. Matrix
3. List
4. Chart
5. Gauge

Table

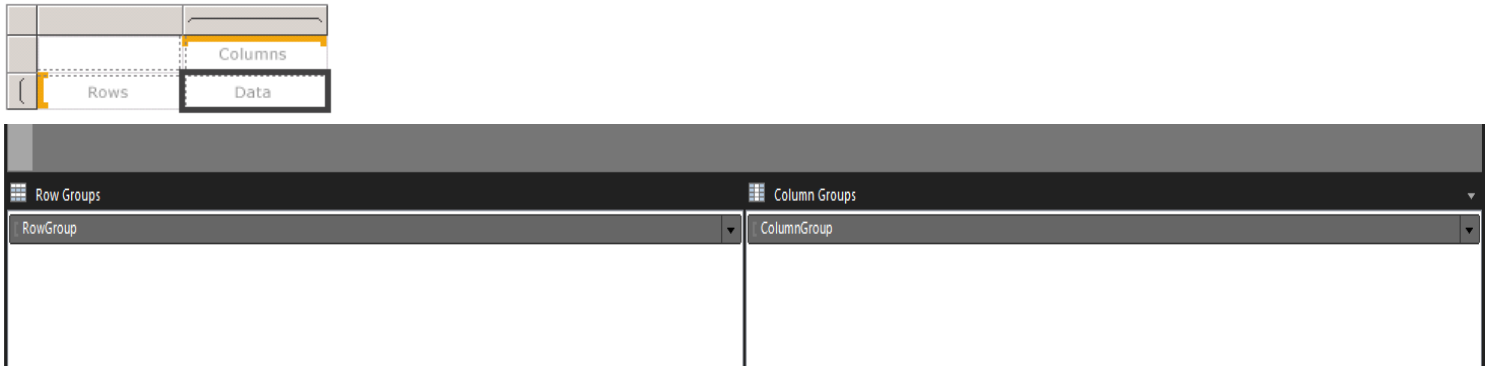
- Use a table to **display detail data, organize the data in row groups, or both**.
- The Table template contains three columns with a table header row and a details row for data.
- The following figures show the initial table template, selected on the design surface:





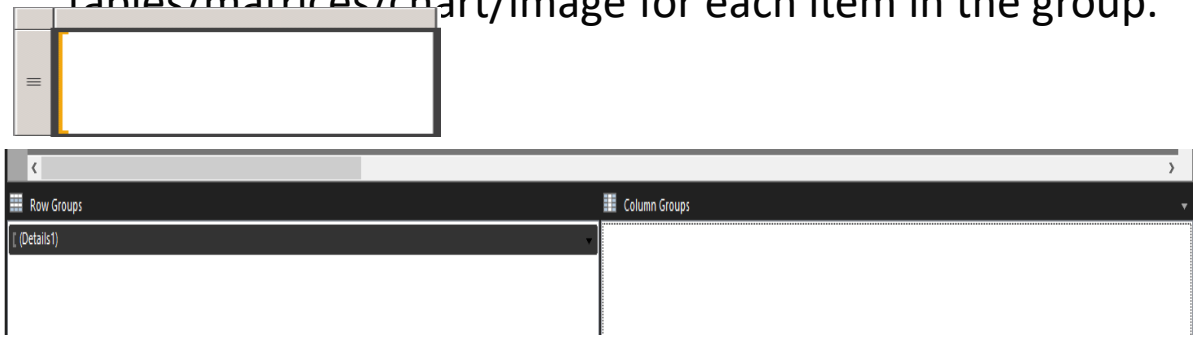
Matrix

- Use a matrix to display **aggregated data summaries, grouped in rows and columns,** similar to a PivotTable or crosstab.
- The number of rows and columns for groups is determined by the number of unique values for each row and column groups.
- The following figures shows the initial matrix template, selected on the design surface:



List

- Use a list to create a free-form layout.
- You are not limited to a grid layout, but can place fields freely inside the list.
- You can use a list to design a form for displaying many dataset fields or as a container to display multiple data regions side by side for grouped data.
- For example, you can define a group for a list; add a table, matrix, chart, and image; and display values in table and graphic form for each group value, as you might for an employee or patient record.
- The List will then iterate through the group in the list and then create multiple tables/matrices/chart/image for each item in the group.



Tips to Know About SSRS

TIP -1

- Never do SELECT * FROM [table]
  - Make SQL Server do the work. Filter in your queries with parameters as much as possible. Query on the data (rows AND columns) that you will actually use. Use parameters with default values that are fast-performing, so have start/end dates default to this week, not this year. Have a multiselect drop down default to none or one, not all. (Example: branches)

TIP - 2

– Avoid repeated Columns in the Query

```
1  select
2   STD_TERM_CODE, STD_PRM_PROGRAM,  STD_PRM_COLL_CODE, IR_DEPT_COLL.DPCL_PROGRAM_DESC, IR_DEPT_COLL.DPCL_DEPT, IR_DEPT_COLL.DPCL_DEPT
3  from RAVEN.CD_STUDENT
4  left join IR_DEPT_COLL
5  on RAVEN.CD_STUDENT.STD_PRM_PROGRAM= IR_DEPT_COLL.DPCL_PROGRAM_CODE
6  where RAVEN.CD_STUDENT.STD_TERM_CODE>=202010
```

Results

Result Sets | Messages | Explain Plan | Pivot & Chart | Profiling

Set 4

Drag a column header here to group by that column

STD_TERM_CODE *	STD_PRM_PROGRAM	STD_PRM_COLL_CODE	DPCL_PROGRAM_DESC	DPCL_DEPT	DPCL_DEPT1
202010	BA-PAL	LF	Politics and Law	Political Science & Geography	Political Science & Geography
202010	BS-BIO-XST	UC	Intended Major: BIO	University College	University College
202010	BS-ME	EN	Mechanical Engineering	Mechanical Engineering	Mechanical Engineering
202010	BS-PUHEPD	LF	Public Health - Epidemiology and Disease Control	Sociology	Sociology
202010	BBA-MKT-XST	UC	Intended Major: MKT	University College	University College
202010	BS-BIO-XST	UC	Intended Major: BIO	University College	University College
202010	BA-IDS	EH	Interdisciplinary Studies	Interdisciplinary Learning & Teaching	Interdisciplinary Learning & Teaching
202010	BBA-MKT	BU	Marketing	Marketing	Marketing
202010	BS-ME	EN	Mechanical Engineering	Mechanical Engineering	Mechanical Engineering
202010	BA-IDS	EH	Interdisciplinary Studies	Interdisciplinary Learning & Teaching	Interdisciplinary Learning & Teaching
202010	BA-UND-XST	UC	Intended Major: UND	University College	University College
202010	BS-BIO-XST	UC	Intended Major: BIO	University College	University College
202010	BA-UND-UC	UC	Undeclared UC	University College	University College
202010	BA-PSY	LF	Psychology	Psychology	Psychology

TIP – 3

Don’t write queries against your live production data, if you can help it.

- Your read-only reports could have a negative performance impact on your read-write queries.
- Lots of other options here: Stage data on another database (even on the same server).

TIP –3

- Don’t include extraneous datasets, they will get run even if you don't use them!

TIP - 4

Don’t do too much.

- Lots of clients will ask for a single giant report with massive amounts of data.
- They may want some sort of dashboard, but when possible, avoid subreports and break out reports into individual instances.
- Considering building a dashboard as a single new report, independent of subreports

TIP - 5

- Copy report Parameters into the header of the report, so that it is obvious that the data is filtered.

- List out parameter selections, date filters, etc., in the header of the report.

SSRS also has some really cool features behind it, including:

- Scheduling reports to be run and emailed out to users as a PDF or excel spreadsheet .
- Caching the dataset
- Running the report against pre-generated snapshots.

  This requires default parameters.