

# **HW\_5**

Online education

## Servers

Servers 1

WIN-ONVEP099PGB

# WIN-ONVEP099PGB

## Databases 1

[academy](#)

## Properties

Name	Value
Product	Microsoft SQL Server
Version Level	RTM
Edition	Standard Edition (64-bit)
Version	14.0.1000.169
Language	Английский (США)
Collation	Cyrillic_General_CI_AS
Platform	NT x64
OS Version	6.3 (14393)
Processors	8
Physical Memory (Mb)	16383
Clustered	<b>False</b>
Root Directory	C:\Program Files\Microsoft SQL Server\MSSQL14.MSSQLSERVER\MSSQL

## Settings

Name	Value
Default data file path	C:\Program Files\Microsoft SQL Server\MSSQL14.MSSQLSERVER\MSSQL\DATA\
Default log file path	C:\Program Files\Microsoft SQL Server\MSSQL14.MSSQLSERVER\MSSQL\DATA\
Default backup file path	C:\Program Files\Microsoft SQL Server\MSSQL14.MSSQLSERVER\MSSQL\Backup
Recovery Interval (minutes)	0
Default index fill factor (%)	0
Default backup media retention (days)	0
Compress backup	<b>False</b>
Nested triggers enabled	<b>True</b>
Allow triggers to fire others	<b>True</b>
Default language	us_english
Default fulltext language	us_english
Default fulltext language LCID	1033

Network packet size	4096
Two digit year cutoff	2049
Max text replication size (bytes)	65536
Locks	0
Blocked process threshold	0
Cursor threshold	-1
Cost threshold for parallelism	5
Scans and runs startup procedures	<b>False</b>
Transform noise words	<b>False</b>
Filestream access level	Disabled
Optimize for 'ad hoc' workloads	<b>False</b>
Remote login timeout (sec)	10

## User databases

### User databases ①

academy

# academy

## Description

## Object Types 1



Tables

## Properties

Name	Value
SQL Server version	Microsoft SQL Server RTM 14.0.1000.169
Compatibility level	
Last backup time	N/A
Last backup time of transaction log	N/A
Default index fill factor (%)	0
Creation date	02.06.2019 13:02:50
Number of Users	4
Database Encryption Enabled	<b>False</b>
Database Encryption Algorithm	N/A
Database status	ONLINE
Max size	0 B
Database size (Mb)	16
Unallocated data space (Mb)	3,94
Default language	N/A
Default fulltext language	us_english

## Options

Name	Value
Database collation	Cyrillic_General_CI_AS
Restrict access	MULTI_USER
Cleanly shutdown	<b>False</b>
Supplemental logging enabled	<b>False</b>
Is Read-Only	<b>False</b>
Auto close	<b>False</b>
Auto shrink	<b>False</b>

Database is read-only for restore log	False
Is Snapshot	False
Snapshot isolation state	False
Read committed snapshot on	False
Recovery model	FULL
Page verify option	Checksum
Auto create statistics	True
Auto update statistics	True
Auto update statistics asynchronously	False
ANSI NULL default	False
ANSI NULL enabled	False
ANSI padding enabled	False
ANSI warnings enabled	False
Arithmetic abort enabled	False
Concatenating NULL yields NULL	False
Numeric roundabort enabled	False
Quoted Identifier ON	False
Recursive triggers enabled	False
Close cursors on commit	False
Local cursor by default	False
Fulltext enabled	True
Trustworthy	False
Database chaining	False
Forced parameterization	False
Master key encrypted by server	False
Published	False
Merge published	False
Is distribution database	False
Sync with backup	False
Service broker GUID	97bfdd55-52fc-4c8b-ab1f-f37a15a99979
Service broker enabled	False
Log reuse wait	Nothing
Date correlation	False
Change data capture enabled	False
Honor broker priority	False

Database owner	WIN-ONVEP099PGB\Rehn
Delayed durability	Disabled
Containment type	<b>False</b>

## Database Files ②

Name	Type	Size	Max size	Autogrowth	File Name
e-shop	Rows	8 192 KB	N/A	65 536 KB	C:\Program Files\Microsoft SQL Server\MSSQL14.MSSQLSERVER\MSSQL\DATA\e-shop.mdf
e-shop_log	Log	8 192 KB	2 147 483 648 KB	65 536 KB	C:\Program Files\Microsoft SQL Server\MSSQL14.MSSQLSERVER\MSSQL\DATA\e-shop_log.ldf

## Tables

### Objects 9

Name	Description
dbo.accounts	счета студентов
dbo.active_learnings	для отслеживания прогресса студентов по актуальному обучению
dbo.courses	с наименованиями, статусом, стоимостью, максимальным и проходным баллом
dbo.learnings	с датами начала и окончания обучения и результатом
dbo.positions	здесь указаны сферы, где работают студенты
dbo.status_course	словарь для статусов по курсам (активный, в разработке, архивный)
dbo.status_learning	словарь для статусов по обучению
dbo.students	с дополнительными параметрами (дата рождения) + информация из таблицы positions для сбора статистики
dbo.transactions	для отслеживания прихода/расхода средств

## dbo.accounts

### Description

счета студентов

### Properties

Name	Value
Collation	
File Group	
Filestream File Group	
Is Partitioned	False
Partitioned Column	
Partition Scheme	
File Groups	
Filestream Partition Scheme	
Filestream File Groups	
Heap	False
Full Text Catalog	
Full Text	
Compression	NONE
Row Count (~)	11
Created	15.06.2019 18:57:57
Last Modified	20.06.2019 21:21:50

### Columns 7

Key	Name	Data Type	Length	Precision	Scale	Not Null	Identity	Rule	Default	Computed	Persisted	Description
	id	int	4	10	0	True				False	False	
	balance	float	8	53	0	False				False	False	
	modification_date	datetime	8	23	3	False				False	False	
	name	varchar	100	0	0	False				False	False	
	object_id	int	4	10	0	False				False	False	
	currency_type_id	varchar	3	0	0	False				False	False	
	status	int	4	10	0	False				False	False	

## Indexes ③

Key	Name	Columns	Unique	Type	Description
	NonClusteredIndex-20190615-170054	balance	False		
	PK_accounts	id	True		
	UQ_acc	id	True		

## Foreign Keys ①

Name	Columns	Description
FK_accounts_students_id	id	

## SQL Script

```
CREATE TABLE dbo.accounts (
    id int NOT NULL,
    balance float NULL,
    modification_date datetime NULL,
    name varchar(100) NULL,
    object_id int NULL,
    currency_type_id varchar(3) NULL,
    status int NULL,
    CONSTRAINT PK_accounts PRIMARY KEY CLUSTERED (id),
    CONSTRAINT UQ_acc UNIQUE (id)
)
ON [PRIMARY]
GO
CREATE INDEX [NonClusteredIndex-20190615-170054]
    ON dbo.accounts (balance)
    ON [PRIMARY]
GO
ALTER TABLE dbo.accounts
    ADD CONSTRAINT FK_accounts_students_id FOREIGN KEY (object_id) REFERENCES dbo.students (id)
GO
```

## Depends On ①

dbo.students

## Used By ①

dbo.transactions

# dbo.active\_learnings

## Description

для отслеживания прогресса студентов по актуальному обучению

## Properties

Name	Value
Collation	
File Group	
Filestream File Group	
Is Partitioned	False
Partitioned Column	
Partition Scheme	
File Groups	
Filestream Partition Scheme	
Filestream File Groups	
Heap	False
Full Text Catalog	
Full Text	
Compression	NONE
Row Count (~)	4
Created	02.06.2019 13:56:51
Last Modified	20.06.2019 23:43:54

## Columns ④

Key	Name	Data Type	Length	Precision	Scale	Not Null	Identity	Rule	Default	Computed	Persisted	Description
	id	int	4	10	0	True				False	False	
	course_id	int	4	10	0	False				False	False	
	person_id	int	4	10	0	False				False	False	
	score	smallint	2	5	0	False				False	False	

## Indexes ②

Key	Name	Columns	Unique	Type	Description
	NonClusteredIndex-20190620-234302	course_id, person_id	False		
	PK_active_learnings	id	True		

## Foreign Keys ②

Name	Columns	Description
FK_active_learnings_courses_id	id	
FK_active_learnings_students_id	id	

## SQL Script

```

CREATE TABLE dbo.active_learnings (
    id int NOT NULL,
    course_id int NULL,
    person_id int NULL,
    score smallint NULL,
    CONSTRAINT PK__active_learnings PRIMARY KEY CLUSTERED (id)
)
ON [PRIMARY]
GO
CREATE INDEX [NonClusteredIndex-20190620-234302]
    ON dbo.active_learnings (course_id, person_id)
    ON [PRIMARY]
GO
ALTER TABLE dbo.active_learnings
    ADD CONSTRAINT FK_active_learnings_courses_id FOREIGN KEY (course_id) REFERENCES dbo.courses (id)
    GO
ALTER TABLE dbo.active_learnings
    ADD CONSTRAINT FK_active_learnings_students_id FOREIGN KEY (person_id) REFERENCES dbo.students (id)
    GO

```

## Depends On ②

dbo.courses  
dbo.students

## Used By

No items found

## dbo.courses

### Description

С наименованиями, статусом, стоимостью, максимальным и проходным баллом

### Properties

Name	Value
Collation	
File Group	
Filestream File Group	
Is Partitioned	False
Partitioned Column	
Partition Scheme	
File Groups	
Filestream Partition Scheme	
Filestream File Groups	
Heap	False
Full Text Catalog	
Full Text	
Compression	NONE
Row Count (~)	7
Created	02.06.2019 13:49:38
Last Modified	20.06.2019 23:44:50

### Columns 6

Key	Name	Data Type	Length	Precision	Scale	Not Null	Identity	Rule	Default	Computed	Persisted	Description
	id	int	4	10	0	True				False	False	
	name	varchar	100	0	0	False				False	False	
	price	float	8	53	0	False				False	False	
	max_score	smallint	2	5	0	False				False	False	
	passing_score	smallint	2	5	0	False				False	False	
	status_id	int	4	10	0	False				False	False	

### Indexes 1

Key	Name	Columns	Unique	Type	Description
	PK_courses	id	True		

## Foreign Keys ①

Name	Columns	Description
FK_courses_status_course_id	id	

## SQL Script

```

CREATE TABLE dbo.courses (
    id int NOT NULL,
    name varchar(100) NULL,
    price float NULL,
    max_score smallint NULL,
    passing_score smallint NULL,
    status_id int NULL,
    CONSTRAINT PK_courses PRIMARY KEY CLUSTERED (id)
)
ON [PRIMARY]
GO
ALTER TABLE dbo.courses
    ADD CONSTRAINT FK_courses_status_course_id FOREIGN KEY (status_id) REFERENCES dbo.status_course (id)
GO

```

## Depends On ①

[dbo.status\\_course](#)

## Used By ②

[dbo.active\\_learnings](#)  
[dbo.learnings](#)

## dbo.learnings

### Description

С датами начала и окончания обучения и результатом

### Properties

Name	Value
Collation	
File Group	
Filestream File Group	
Is Partitioned	False
Partitioned Column	
Partition Scheme	
File Groups	
Filestream Partition Scheme	
Filestream File Groups	
Heap	False
Full Text Catalog	
Full Text	
Compression	NONE
Row Count (~)	5
Created	02.06.2019 15:00:12
Last Modified	20.06.2019 22:59:29

### Columns 7

Key	Name	Data Type	Length	Precision	Scale	Not Null	Identity	Rule	Default	Computed	Persisted	Description
	id	int	4	10	0	True				False	False	
	course_id	int	4	10	0	False				False	False	
	person_id	int	4	10	0	False				False	False	
	start_learning_date	date	3	10	0	False				False	False	
	end_learning_date	date	3	10	0	False				False	False	
	score	smallint	2	5	0	False				False	False	

	status	int	4	10	0	False				False	False	
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## Indexes ②

Key	Name	Columns	Unique	Type	Description
	NonClusteredIndex-20190615-172416	course_id, person_id, score	False		
	PK_learnings	id	True		

## Foreign Keys ③

Name	Columns	Description
FK_learnings_courses_id	id	
FK_learnings_status_learning_id	id	
FK_learnings_students_id	id	

## SQL Script

```

CREATE TABLE dbo.learnings (
    id int NOT NULL,
    course_id int NULL,
    person_id int NULL,
    start_learning_date date NULL,
    end_learning_date date NULL,
    score smallint NULL,
    status int NULL,
    CONSTRAINT PK_learnings PRIMARY KEY CLUSTERED (id)
)
ON [PRIMARY]
GO
CREATE INDEX [NonClusteredIndex-20190615-172416]
    ON dbo.learnings (course_id, person_id, score)
    ON [PRIMARY]
GO
ALTER TABLE dbo.learnings
    ADD CONSTRAINT FK_learnings_courses_id FOREIGN KEY (course_id) REFERENCES dbo.courses (id)
GO
ALTER TABLE dbo.learnings
    ADD CONSTRAINT FK_learnings_status_learning_id FOREIGN KEY (status) REFERENCES dbo.status_learning (id)
GO
ALTER TABLE dbo.learnings
    ADD CONSTRAINT FK_learnings_students_id FOREIGN KEY (person_id) REFERENCES dbo.students (id)
GO

```

## Depends On ③

[dbo.courses](#)  
[dbo.status\\_learning](#)  
[dbo.students](#)

## Used By

No items found

# dbo.positions

## Description

здесь указаны сферы, где работают студенты

## Properties

Name	Value
Collation	
File Group	
Filestream File Group	
Is Partitioned	False
Partitioned Column	
Partition Scheme	
File Groups	
Filestream Partition Scheme	
Filestream File Groups	
Heap	False
Full Text Catalog	
Full Text	
Compression	NONE
Row Count (~)	6
Created	02.06.2019 16:18:04
Last Modified	15.06.2019 19:11:07

## Columns ②

Key	Name	Data Type	Length	Precision	Scale	Not Null	Identity	Rule	Default	Computed	Persisted	Description
	id	int	4	10	0	True				False	False	
	name	varchar	30	0	0	False				False	False	

## Indexes ①

Key	Name	Columns	Unique	Type	Description
	PK_positions	id	True		

## SQL Script

```
CREATE TABLE dbo.positions (
    id int NOT NULL,
    name varchar(30) NULL,
    CONSTRAINT PK__positions PRIMARY KEY CLUSTERED (id)
)
ON [PRIMARY]
GO
```

## Depends On

No items found

## Used By ①

[dbo.students](#)

## dbo.status\_course

### Description

словарь для статусов по курсам (активный, в разработке, архивный)

### Properties

Name	Value
Collation	
File Group	
Filestream File Group	
Is Partitioned	False
Partitioned Column	
Partition Scheme	
File Groups	
Filestream Partition Scheme	
Filestream File Groups	
Heap	False
Full Text Catalog	
Full Text	
Compression	NONE
Row Count (~)	3
Created	20.06.2019 22:43:40
Last Modified	20.06.2019 22:59:15

### Columns ②

Key	Name	Data Type	Length	Precision	Scale	Not Null	Identity	Rule	Default	Computed	Persisted	Description
	id	int	4	10	0	True				False	False	
	status	varchar	20	0	0	False				False	False	

### Indexes ①

Key	Name	Columns	Unique	Type	Description
	PK_status_course_id	id	True		

### SQL Script

```
CREATE TABLE dbo.status_course (
    id int NOT NULL,
    status varchar(20) NULL,
    CONSTRAINT PK_status_course_id PRIMARY KEY CLUSTERED (id)
)
ON [PRIMARY]
GO
```

## Depends On

No items found

## Used By ①

[dbo.courses](#)

# dbo.status\_learning

## Description

словарь для статусов по обучению

## Properties

Name	Value
Collation	
File Group	
Filestream File Group	
Is Partitioned	False
Partitioned Column	
Partition Scheme	
File Groups	
Filestream Partition Scheme	
Filestream File Groups	
Heap	False
Full Text Catalog	
Full Text	
Compression	NONE
Row Count (~)	3
Created	20.06.2019 22:40:27
Last Modified	20.06.2019 22:59:29

## Columns ②

Key	Name	Data Type	Length	Precision	Scale	Not Null	Identity	Rule	Default	Computed	Persisted	Description
	id	int	4	10	0	True				False	False	
	status	varchar	20	0	0	False				False	False	

## Indexes ①

Key	Name	Columns	Unique	Type	Description
	PK_status_learning_id	id	True		

## SQL Script

```
CREATE TABLE dbo.status_learning (
    id int NOT NULL,
    status varchar(20) NULL,
    CONSTRAINT PK_status_learning_id PRIMARY KEY CLUSTERED (id)
)
ON [PRIMARY]
GO
```

## Depends On

No items found

## Used By ①

[dbo.learnings](#)

# dbo.students

## Description

с дополнительными параметрами (дата рождения) + информация из таблицы positions для сбора статистики

## Properties

Name	Value
Collation	
File Group	
Filestream File Group	
Is Partitioned	False
Partitioned Column	
Partition Scheme	
File Groups	
Filestream Partition Scheme	
Filestream File Groups	
Heap	False
Full Text Catalog	
Full Text	
Compression	NONE
Row Count (~)	11
Created	02.06.2019 13:44:54
Last Modified	15.06.2019 19:11:07

## Columns 7

Key	Name	Data Type	Length	Precision	Scale	Not Null	Identity	Rule	Default	Computed	Persisted	Description
	id	int	4	10	0	True				False	False	
	fullname	varchar	100	0	0	False				False	False	
	login	varchar	50	0	0	False				False	False	
	email	varchar	50	0	0	False				False	False	
	birth_date	date	3	10	0	False				False	False	
	sex	varchar	1	0	0	False				False	False	
	position_parent_id	int	4	10	0	False				False	False	

## Indexes ②

Key	Name	Columns	Unique	Type	Description
	NonClusteredIndex-20190615-172557	fullname, login, email	False		
	PK_students	id	True		

## Foreign Keys ①

Name	Columns	Description
FK_students_positions_id	id	

## SQL Script

```
CREATE TABLE dbo.students (
    id int NOT NULL,
    fullname varchar(100) NULL,
    login varchar(50) NULL,
    email varchar(50) NULL,
    birth_date date NULL,
    sex varchar(1) NULL,
    position_parent_id int NULL,
    CONSTRAINT PK_students PRIMARY KEY CLUSTERED (id)
)
ON [PRIMARY]
GO
CREATE INDEX [NonClusteredIndex-20190615-172557]
    ON dbo.students (fullname, login, email)
    ON [PRIMARY]
GO
ALTER TABLE dbo.students
    ADD CONSTRAINT FK_students_positions_id FOREIGN KEY (position_parent_id) REFERENCES dbo.positions (id)
GO
```

## Depends On ①

dbo.positions

## Used By ③

dbo.accounts  
dbo.active\_learnings  
dbo.learnings

# dbo.transactions

## Description

для отслеживания прихода/расхода средств

## Properties

Name	Value
Collation	
File Group	
Filestream File Group	
Is Partitioned	False
Partitioned Column	
Partition Scheme	
File Groups	
Filestream Partition Scheme	
Filestream File Groups	
Heap	False
Full Text Catalog	
Full Text	
Compression	NONE
Row Count (~)	9
Created	02.06.2019 15:10:08
Last Modified	15.06.2019 19:06:16

## Columns 6

Key	Name	Data Type	Length	Precision	Scale	Not Null	Identity	Rule	Default	Computed	Persisted	Description
	id	int	4	10	0	True				False	False	
	date	datetime	8	23	3	False				False	False	
	receipt	float	8	53	0	False				False	False	
	modification_date	datetime	8	23	3	False				False	False	
	account_id	int	4	10	0	False				False	False	
	expense	float	8	53	0	False				False	False	

## Indexes ②

Key	Name	Columns	Unique	Type	Description
	NonClusteredIndex-20190615-173230	date, account_id	False		
	PK_transactions_id	id	True		

## Check Constraints ②

Name	Columns	Condition	Description
CHK_Trn	receipt	([receipt]>(0))	
CHK_Trn2	expense	([expense]>(0))	

## Foreign Keys ①

Name	Columns	Description
FK_transactions_accounts_id	id	

## SQL Script

```
CREATE TABLE dbo.transactions (
    id int NOT NULL,
    date datetime NULL,
    receipt float NULL,
    modification_date datetime NULL,
    account_id int NULL,
    expense float NULL,
    CONSTRAINT PK_transactions_id PRIMARY KEY CLUSTERED (id),
    CONSTRAINT CHK_Trn CHECK ([receipt]>(0)),
    CONSTRAINT CHK_Trn2 CHECK ([expense]>(0))
)
ON [PRIMARY]
GO
CREATE INDEX [NonClusteredIndex-20190615-173230]
    ON dbo.transactions (date, account_id)
ON [PRIMARY]
GO
ALTER TABLE dbo.transactions
    ADD CONSTRAINT FK_transactions_accounts_id FOREIGN KEY (account_id) REFERENCES dbo.accounts (id)
GO
```

## Depends On ①

dbo.accounts

## Used By

No items found