

Data Structures in Perl

Talk to a Teacher

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National Mission on Education through ICT

<http://sakshat.ac.in>

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Learning Objective

In this tutorial, we will learn



Learning Objective

In this tutorial, we will learn

- ▶ **Data Structures in Perl**



System Requirements

- ▶ **Ubuntu Linux 12.04 OS**



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- ▶ **Perl 5.14.2**



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- ▶ **Ubuntu Linux 12.04 OS**
- ▶ **Perl 5.14.2**
- ▶ **gedit Text Editor**



Pre-requisites

Basic knowledge of

- ▶ **Variables** in Perl



Pre-requisites

Basic knowledge of

- ▶ **Variables** in Perl
- ▶ **Comments, Loops and Conditional Statements** will be an added advantage



Pre-requisites

Basic knowledge of

- ▶ **Variables** in Perl
- ▶ **Comments, Loops** and **Conditional Statements** will be an added advantage
- ▶ For relevant tutorials, visit <http://spokentutorial.org>



Data Structures

Perl has 3 types of data structures



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Data Structures

Perl has 3 types of data structures

- ▶ **Scalar**



Data Structures

Perl has 3 types of data structures

- ▶ Scalar
- ▶ Array



Data Structures

Perl has 3 types of data structures

- ▶ **Scalar**
- ▶ **Array**
- ▶ **Hash (Associative Array)**



Scalar

This type of data structure

- ▶ **holds a value of any data type**



Scalar

This type of data structure

- ▶ holds a value of any data type
- ▶ data type can be string, number, double, etc



Scalar

This type of data structure

- ▶ holds a value of any data type
- ▶ data type can be string, number, double, etc
- ▶ also holds the reference to an array or reference to a hash



Reference in Perl will be covered in subsequent tutorial



Scalar

Scalar type of data structure is as simple as declaring the variable



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Scalar type of data structure is as simple as declaring the variable

- ▶ `$count = 12;`



Scalar

Scalar type of data structure is as simple as declaring the variable

- ▶ `$count = 12;`
- ▶ `$string = 'I am scalar of type string';`



Operations on scalar

We can perform the following operations on scalar



Operations on scalar

We can perform the following operations on scalar

- ▶ **Assign a value to it**



Operations on scalar

We can perform the following operations on scalar

- ▶ Assign a value to it
- ▶ Assign one scalar to another



Operations on scalar

- ▶ **Arithmetic operations on number type of scalars like**



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Operations on scalar

- ▶ **Arithmetic operations on number type of scalars like**
 - ▶ **add**



Operations on scalar

- ▶ **Arithmetic operations on number type of scalars like**
 - ▶ **add**
 - ▶ **subtract**



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Operations on scalar

- ▶ **Arithmetic operations on number type of scalars like**
 - ▶ add
 - ▶ subtract
- ▶ **String operations on string scalar like**



Operations on scalar

- ▶ **Arithmetic operations on number type of scalars like**
 - ▶ add
 - ▶ subtract
- ▶ **String operations on string scalar like**
 - ▶ **concatenation**



Operations on scalar

- ▶ **Arithmetic operations on number type of scalars like**
 - ▶ add
 - ▶ subtract
- ▶ **String operations on string scalar like**
 - ▶ concatenation
 - ▶ **substr**



Array

- ▶ It is a list of elements



Array

- ▶ **It is a list of elements**
- ▶ **Elements can be string, number, etc**



Array

- ▶ It is a list of elements
- ▶ Elements can be string, number, etc
- ▶ It has an index, which is used for performing various operations on the array



Array

- ▶ It is a list of elements
- ▶ Elements can be string, number, etc
- ▶ It has an index, which is used for performing various operations on the array
- ▶ Index starts with Zero



Array

Unlike some of the other programming languages,



Array

Unlike some of the other programming languages,

- ▶ there is no need to declare an array or its length before using it in Perl



Array

Unlike some of the other programming languages,

- ▶ there is no need to declare an array or its length before using it in Perl
- ▶ Perl array stretches or shrinks as per the elements added or removed



Syntax to write an array is



Syntax

Syntax to write an array is

```
@variableName = (element 1,  
element 2, ..., element N);
```



Hash

- ▶ Hash is alternatively called as Associative array



Hash

- ▶ Hash is alternatively called as **Associative array**
- ▶ It is a **Key Value pair data structure**



Hash

- ▶ Hash is alternatively called as **Associative array**
- ▶ It is a **Key Value pair data structure**
- ▶ **Key in hash is unique**



Hash

- ▶ If the same key is added again,



Hash

- ▶ **If the same key is added again,**
 - ▶ then the value of that key will be overridden



Hash

- ▶ **If the same key is added again,**
 - ▶ then the value of that key will be overridden
 - ▶ **by the latest value assigned to the key**



Hash

- ▶ **If the same key is added again,**
 - ▶ then the value of that key will be overridden
 - ▶ by the latest value assigned to the key
- ▶ **Value can be duplicate**



Hash

- ▶ **If the same key is added again,**
 - ▶ then the value of that key will be overridden
 - ▶ by the latest value assigned to the key
- ▶ **Value can be duplicate**
- ▶ **It also holds value of any data type**



Syntax of Hash is



Syntax

Syntax of Hash is

```
%variableName= (  
"Key1" => "Value1",  
"Key2" => "Value2"  
);
```



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Summary

In this tutorial we learnt,

- ▶ **Scalar**
- ▶ **Array**
- ▶ **Hash Data Structures in Perl**



Assignments

- ▶ **Declare scalar variable**
- ▶ **Assign value of type float to it and then print it**
- ▶ **Declare and print an array of colors 'Red', 'Yellow' and 'Green'**



Assignments

- ▶ **Declare and print a hash of Employee Name and their department.**
Hint: 'Employee' => 'John',
'Department' => 'Engineering'



About the Spoken Tutorial Project

- ▶ Watch the video available at http://spoken-tutorial.org/What_is_a_Spoken_Tutorial
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- ▶ Gives certificates to those who pass an online test
- ▶ For more details, please write to contact@spoken-tutorial.org



Acknowledgements

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- ▶ **It is supported by the National Mission on Education through ICT, MHRD, Government of India**
- ▶ **More information on this Mission is available at**

<http://spoken-tutorial.org/NMEICT-Intro>

