

# Visual Basic

[en.wikibooks.org](http://en.wikibooks.org)

December 29, 2013

On the 28th of April 2012 the contents of the English as well as German Wikibooks and Wikipedia projects were licensed under Creative Commons Attribution-ShareAlike 3.0 Unported license. A URI to this license is given in the list of figures on page 247. If this document is a derived work from the contents of one of these projects and the content was still licensed by the project under this license at the time of derivation this document has to be licensed under the same, a similar or a compatible license, as stated in section 4b of the license. The list of contributors is included in chapter Contributors on page 245. The licenses GPL, LGPL and GFDL are included in chapter Licenses on page 251, since this book and/or parts of it may or may not be licensed under one or more of these licenses, and thus require inclusion of these licenses. The licenses of the figures are given in the list of figures on page 247. This PDF was generated by the  $\LaTeX$  typesetting software. The  $\LaTeX$  source code is included as an attachment (`source.7z.txt`) in this PDF file. To extract the source from the PDF file, you can use the `pdfdetach` tool including in the `poppler` suite, or the <http://www.pdfplabs.com/tools/pdftk-the-pdf-toolkit/> utility. Some PDF viewers may also let you save the attachment to a file. After extracting it from the PDF file you have to rename it to `source.7z`. To uncompress the resulting archive we recommend the use of <http://www.7-zip.org/>. The  $\LaTeX$  source itself was generated by a program written by Dirk Hünninger, which is freely available under an open source license from [http://de.wikibooks.org/wiki/Benutzer:Dirk\\_Huenniger/wb2pdf](http://de.wikibooks.org/wiki/Benutzer:Dirk_Huenniger/wb2pdf).

# Contents

<b>1</b>	<b>Introduction</b>	<b>3</b>
1.1	How to use this book . . . . .	3
1.2	Terminology . . . . .	4
1.3	VB Integrated Development Environment . . . . .	4
<b>2</b>	<b>History</b>	<b>5</b>
2.1	Evolution of Visual Basic . . . . .	6
2.2	Timeline of Visual Basic . . . . .	6
2.3	See also . . . . .	7
<b>3</b>	<b>Getting Started</b>	<b>9</b>
3.1	Hello World . . . . .	9
3.2	The Visual Basic Integrated Development Environment . . . . .	9
3.3	Parts of a Visual Basic Program . . . . .	13
3.4	Controls . . . . .	13
3.5	Reserved Words . . . . .	17
3.6	REMs . . . . .	18
3.7	Error Checking . . . . .	18
3.8	Declaring Variables (Dimensioning) . . . . .	20
3.9	Simple output . . . . .	21
<b>4</b>	<b>Simple Arithmetic</b>	<b>25</b>
4.1	Arithmetic Operators . . . . .	25
4.2	Comparison Operators . . . . .	29
4.3	Built in Arithmetic Functions . . . . .	29
4.4	Trigonometrical Functions . . . . .	30
<b>5</b>	<b>Branching</b>	<b>33</b>
5.1	If...Then Statement . . . . .	33
5.2	If..Then..Else Statement . . . . .	34
5.3	Select Case . . . . .	35
5.4	Unconditionals . . . . .	35
<b>6</b>	<b>Loops</b>	<b>39</b>
6.1	For..Next Loops . . . . .	39
6.2	Do Loops . . . . .	40
6.3	While Loops . . . . .	42
6.4	Nested Loops . . . . .	42
<b>7</b>	<b>Strings</b>	<b>43</b>
7.1	Built In String Functions . . . . .	43

7.2	Regular Expressions . . . . .	43
<b>8</b>	<b>Built In String Functions</b>	<b>45</b>
8.1	Comparison . . . . .	45
8.2	Concatenation . . . . .	46
8.3	Containment . . . . .	46
8.4	Replacing . . . . .	46
8.5	Indexing and Substrings . . . . .	46
8.6	String constants . . . . .	47
8.7	String Functions . . . . .	47
8.8	Quotes in strings . . . . .	50
8.9	Startswith and Endswith . . . . .	50
8.10	Pattern Matching . . . . .	51
<b>9</b>	<b>Regular Expressions</b>	<b>53</b>
9.1	Class outline . . . . .	53
9.2	Constructing a regexp . . . . .	53
9.3	Testing for match . . . . .	54
9.4	Finding matches . . . . .	54
9.5	Finding groups . . . . .	54
9.6	Replacing . . . . .	55
9.7	Splitting . . . . .	55
9.8	Example application . . . . .	55
9.9	External links . . . . .	58
<b>10</b>	<b>Arrays</b>	<b>59</b>
10.1	Introduction . . . . .	59
10.2	Use of Arrays . . . . .	59
10.3	Indices . . . . .	60
10.4	Size . . . . .	60
10.5	Dynamic Arrays . . . . .	60
10.6	Variant Arrays . . . . .	62
10.7	Multi-Dimensional Arrays . . . . .	63
10.8	Erasing Arrays . . . . .	63
10.9	Mixing Arrays . . . . .	63
10.10	Use of Matrices . . . . .	64
10.11	Sorting . . . . .	65
<b>11</b>	<b>Collections</b>	<b>67</b>
<b>12</b>	<b>Dictionaries</b>	<b>71</b>
<b>13</b>	<b>Data Types</b>	<b>73</b>
13.1	Built in Types . . . . .	73
13.2	Byte, Integer & Long . . . . .	74
13.3	Single & Double . . . . .	74
13.4	String . . . . .	75
13.5	Structure . . . . .	76
13.6	Enumeratation . . . . .	76

---

13.7	Type Test . . . . .	77
<b>14</b>	<b>Procedures and Functions</b>	<b>79</b>
14.1	Defining procedures . . . . .	79
14.2	Calling procedures . . . . .	79
14.3	Procedure parts . . . . .	80
14.4	Visibility . . . . .	80
14.5	Early Termination . . . . .	81
14.6	Procedure type . . . . .	81
14.7	Optional arguments . . . . .	82
<b>15</b>	<b>Error Handling</b>	<b>83</b>
<b>16</b>	<b>Files</b>	<b>85</b>
16.1	Layout of Data . . . . .	85
16.2	Input . . . . .	85
16.3	Output . . . . .	87
16.4	How to specify the path to a file . . . . .	88
16.5	Examples . . . . .	89
<b>17</b>	<b>User Interfaces</b>	<b>91</b>
<b>18</b>	<b>Simple Graphics</b>	<b>93</b>
18.1	Shape and Line controls . . . . .	93
<b>19</b>	<b>Windows Dialogs</b>	<b>95</b>
19.1	Open and Save dialogs . . . . .	95
19.2	Color dialog . . . . .	97
19.3	Font dialog . . . . .	99
19.4	Print dialog . . . . .	101
<b>20</b>	<b>Databases</b>	<b>103</b>
<b>21</b>	<b>Windows API</b>	<b>107</b>
21.1	Declaration . . . . .	107
21.2	Resources . . . . .	108
<b>22</b>	<b>Subclassing</b>	<b>109</b>
22.1	Why Subclass . . . . .	110
22.2	Example . . . . .	110
<b>23</b>	<b>External Processes</b>	<b>113</b>
23.1	The Shell Function . . . . .	113
23.2	Exercises . . . . .	114
<b>24</b>	<b>Object Oriented Programming</b>	<b>115</b>
24.1	Types . . . . .	116
24.2	Classes . . . . .	117
24.3	Inheritance . . . . .	117
24.4	Collections . . . . .	120

[Click here to download full PDF material](#)