

Информационные технологии в технической физике

#02 Компьютерная арифметика [часть 1]



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Политехнический университет [Квантовая электроника]

- Компьютерная арифметика
- Системы контроля версий [бонус]



Компьютерная арифметика

...01011101000101101010...

...01011101000101101010...

...0101110**100**0101101010...

$$1 \times 2^2 + 0 \times 2^1 + 0 \times 2^0$$

$$x = \sum_{k=0}^{n-1} a_k b^k$$

Позиционная система счисления

$$x = \sum_{k=0}^{n-1} a_k b^k$$

Какой базисный элемент выбрать?

$$x = \sum_{k=0}^{n-1} a_k b^k$$



m

регистр

$$x = \sum_{k=0}^{n-1} a_k b^k$$



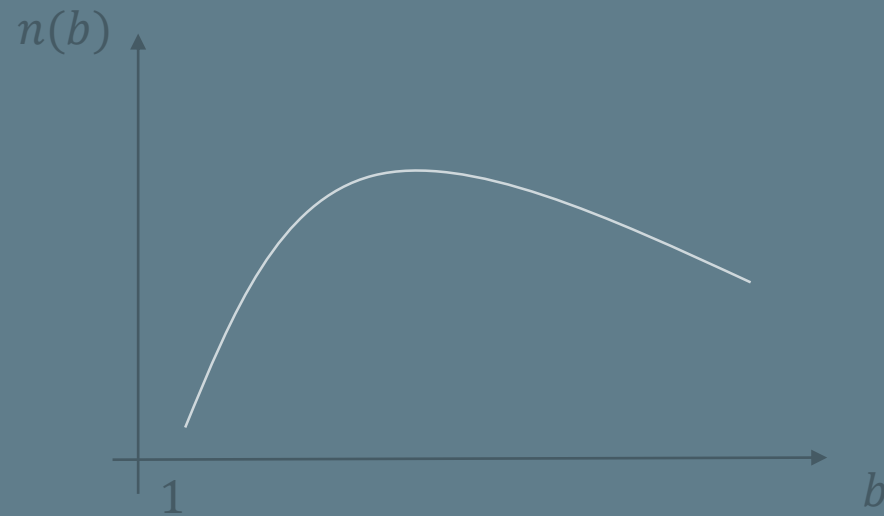
регистр

$$x = \sum_{k=0}^{n-1} a_k b^k$$

$$n = b^{\overline{A}}$$

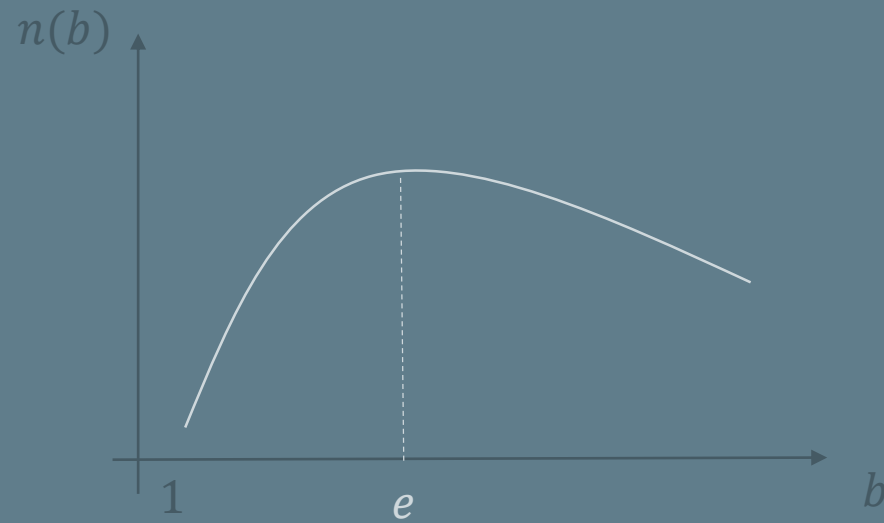
При каком b максимально n ?

$$x = \sum_{k=0}^{n-1} a_k b^k$$



При каком b максимально n ?

$$x = \sum_{k=0}^{n-1} a_k b^k$$



При каком b максимально n ?

...0101110**100.01**01101010...

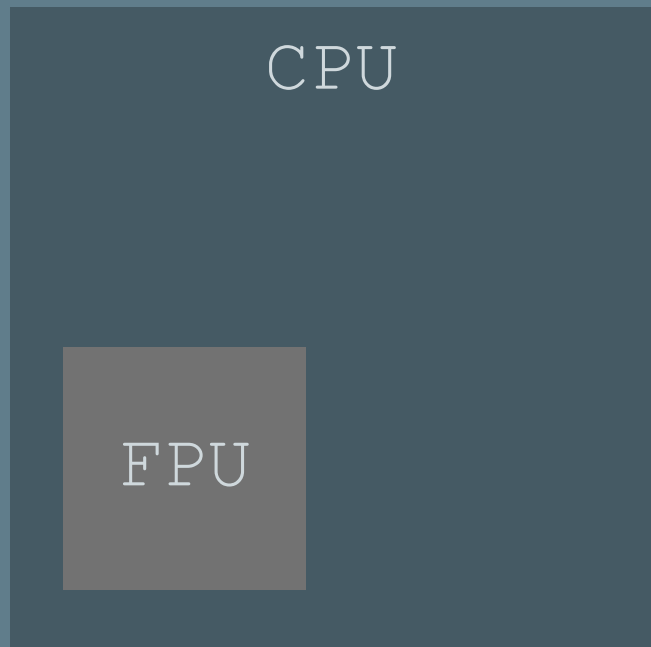
$$1 \times 2^2 + 0 \times 2^1 + 0 \times 2^0 + 0 \times 2^{-1} + 1 \times 2^{-2}$$

Арифметика с
фиксированной точкой

Арифметика с
плавающей точкой

IEEE 754





Арифметика с
плавающей точкой

IEEE 754





$$\pm A \times 2^E$$

Арифметика с плавающей точкой

IEEE 754



Русский

Позиционная система счисления

Трит

Арифметика с плавающей точкой

Арифметика с фиксированной точкой

Мантисса

English

Positional Notation

Trit

Floating-Point Arithmetic

Fixed-point Arithmetic

Mantissa



Перерыв 5 минут



Системы контроля версий

[бонус]



Система контроля версий – это система, регистрирующая изменения в одном или нескольких файлах с тем, чтобы в дальнейшем была возможность вернуться к определённым старым версиям этих файлов





Централизованные

Распределённые



Централизованные

Распределённые





SourceTree interface showing a commit history table and a diff view for `XmlAttributeDeserializer.cs`.

Graph	Description	Date	Author	Commit
	Merge pull request #259 from Dharun/patch-1	11 Jan 2013 19:18	Andrew Young <a1>	cc283fb
	Update CONTRIBUTING.markdown	18 Sep 2012 0:26	John Sheehan <jol>	054adce
	Merge pull request #324 from PedroLamas/master	17 Sep 2012 18:18	Pedro Lamas <pec>	a529617
	Added CONTRIBUTING.markdown	17 Sep 2012 18:15	Pedro Lamas <pec>	cfce270
	Merge pull request #321 from apodlaski/master	13 Sep 2012 5:56	Andrew Young <a1>	eef0c86
	Another fix for ExecuteAsync	7 Sep 2012 14:16	Aleksander Podlas	2ce5204
	104.1 Version bump: 401.1	7 Sep 2012 6:39	Andrew Young <a1>	196fa7e
	Merge pull request #320 from jasonmoore2k/ExecuteAsyncFix	5 Sep 2012 14:16	Pete Johanson <la>	4531670

Commit: cc283fb0843e1141f717dcc6b3009206b6c95b62 [cc283fb]
Parents: 054adce80b, c68de9d856
Author: Andrew Young <andrewyoung@gmail.com>
Date: 11 January 2013 19:18:31
Labels: HEAD, origin/master, origin/HEAD, master

Merge pull request #259 from Dharun/patch-1

Filename	Path
XmlAttributeDeserializer.cs	RestSharp\Deserializers
.gitignore	
NuGet.Config	.nuget
NuGet.exe	.nuget

```
RestSharp/Deserializers/XmlAttributeDeserializer.cs
Modified file, 1 lines added, 1 lines removed
Reverse File

Hunk 1: Lines 109-115
109 109
110 110         \ var value = GetValueFromXml(root, name, is
111 111
112 -
112 +         if (value == null || value == string.Empty
113 113         {}
114 114         // special case for inline list it
115 115         if (type.IsGenericType)
```





+ ▾

Filter repositories

GitHub

- Akavache
- atom
- GitPad
- libgit2
- libgit2sharp
- octokit.net**
- ReactiveUI
- SeeGit
- Windows
- windows.github.com

Enterprise

- tutorial

master ▾

Sync +12 | ⚙

History

- Merge pull request #481 from octokit/sort-is-actua...
18 days ago by Phil Haack
- cache enum label
18 days ago by Brendan Forster
- test fields
18 days ago by Brendan Forster
- removed redundant attributes from issue search
18 days ago by Brendan Forster
- if the attribute cannot be found, lowercase the enu...
18 days ago by Brendan Forster
- bugfix - the State value when searching for issues i...
22 days ago by Brendan Forster
- Merge pull request #479 from octokit/fix-async-na...
22 days ago by Phil Haack

Merge pull request #481 from octokit/sort-is-actually-case-sensitive

Phil Haack [aad94fe](#) [GitHub](#) [Revert](#)

searching for issues hits a case-sensitive field

Octokit.Tests.Integration\Clients\SearchClientTests.cs 12 ██████

```
... ... @@ -54,4 +54,16 @@ public class SearchClientTests
54 54
55 55     Assert.NotEmpty(repos.Items);
56 56 }
57 +
58 + [Fact]
59 + public async Task SearchForOpenIssues()
60 + {
61 +     var request = new SearchIssuesRequest("phone");
62 +     request.Repo = "caliburn-micro/caliburn.micro";
63 +     request.State = ItemState.Open;
64 +
65 +     var issues = await _githubClient.Search.SearchIssues(request);
66 +
67 +     Assert.NotEmpty(issues.Items);
68 + }
57 69 }
```





github/blog-posts

Changes History Branches Settings Sync

4,029 commits

making steps more explicit

CONTRIBUTING.md

```
@@ -1,7 +1,10 @@
1 1 Writing an entry for the GitHub blog? Rad. Here are some steps
2 2 to follow:
3 - 1. We've compiled [this helpful list](https://githubber.com/
4 - 2. When you're ready, open a PR with your draft in markdown
5 - 3. Include details in your PR about when you'd like to ship
6 - 4. Label your PR appropriately as [a proposed draft](https://
7 - 5. Expect feedback on your draft, as well as some discussion
   + 1. We've compiled [this helpful list](https://githubber.com/
   + 2. When you're ready, open a PR with your draft in markdown
   + 3. Include details in your PR about when you'd like to ship
```





D:\TortoiseGit - Log Messages - TortoiseGit

master From: 2008-11-05 To: 2013-10-08 is, Authors, Author Email

Graph	Actions	Message
		Drop "Warn on missing Signed-Off-by" from Git settings page
		Save all settings not just changed ones
		Also rename msysgit to "Git for Windows" in docs
		Make tgit protocol handler include a command
		Automatically remove "git pull" and parse branch from clipboard
		Add optional support for github-windows and smartgit protocol handlers
		Rename msysgit to "Git for Windows"
		Fixed issue #1915: Submodule Update Dialog behaves curious
		Add "Show whole project" checkbox in Submodule Update Dialog
		Refactor CSubmoduleUpdateDlg to add Refresh method
		Enlarge Submodule Update Dialog

SHA-1: c44d398b2cfb311202b3eb5fbb0ab07adf198880

* **Make tgit protocol handler include a command**

Now tgit-links work as follows:
tgit://clone/https://code.google.com/p/tortoisegit/

Signed-off-by: Sven Strickroth <email@cs-ware.de>

Path	Extension	Status	Lines added	Lines removed
src/Changelog.txt	.txt	Modified	1	1
src/TortoiseGitSetup/StructureFragment.wxi	.wxi	Modified	1	1
src/TortoiseProc/TortoiseProc.cpp	.cpp	Modified	5	1

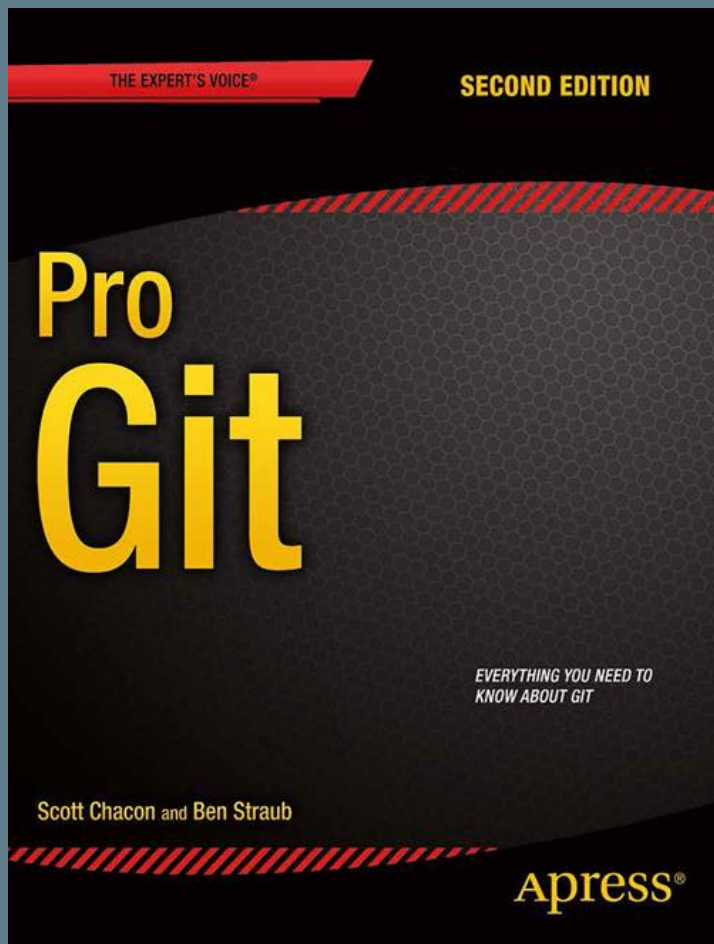
Showing 6969 revision(s), from revision 60636b3 to revision 61f6d1c - 1 revision(s) selected, 0 file(s) selected

Show Whole Project
 All Branches

Filter paths Help

Refresh Statistics Walk Behaviour View OK






<http://git-scm.com/book/ru/v1>

korikov.constantine@spbstu.ru

