Measuring Software Ticket Quality using Quantitative Data Analysis

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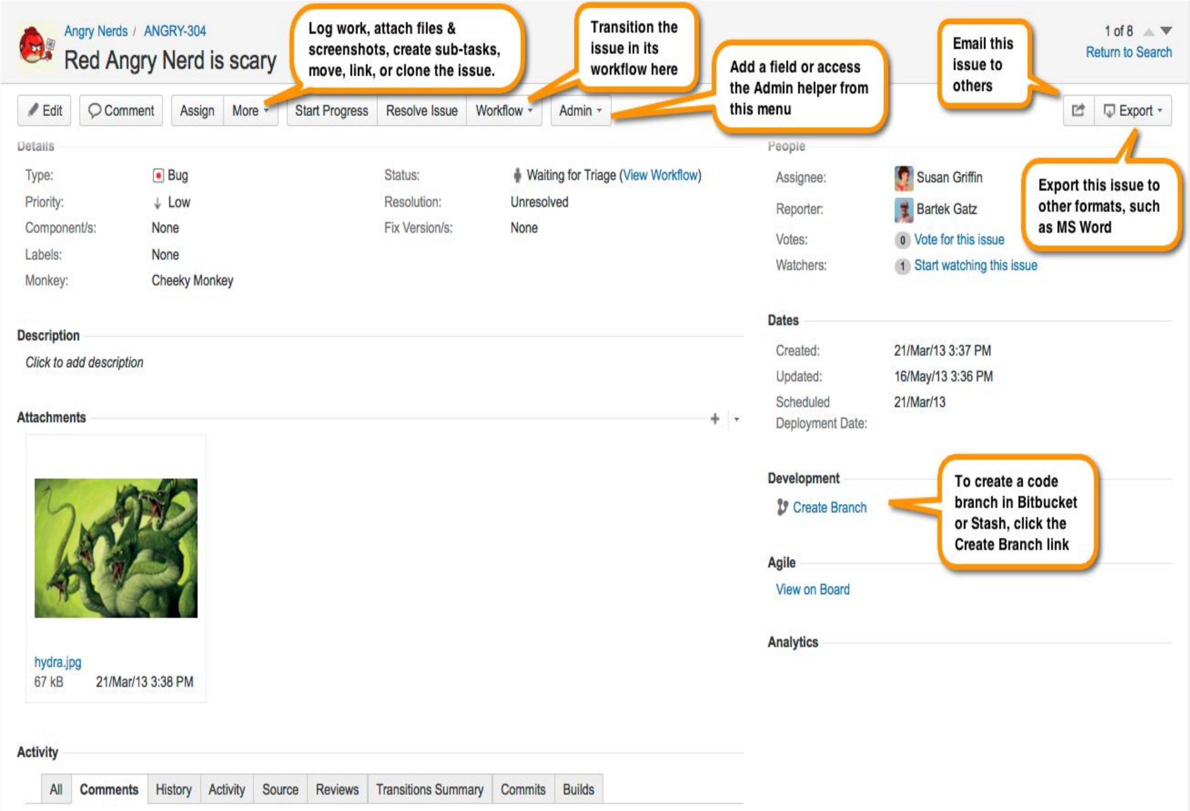
Introduction

- Software engineering is becoming more complex as technology has become ubiquitous
- Harder to plan, manage and track work during development lifecycle
- Solution? **Issue tracking systems** (e.g. Jira, Bugzilla, Manuscript)
- **Software Tickets** are the core component of such systems

Software Tickets

- Many components: summary, description, attachments, comments…
- Usually come in one of 2 forms: feature requests and bug reports
- What makes for a **High Quality** software ticket?
- Our findings - contribution to the community



Angry Nerds / ANGRY-304

Red Angry Nerd is scary

Log work, attach files & screenshots, create sub-tasks, move, link, or clone the issue.

Transition the issue in its workflow here

Add a field or access the Admin helper from this menu

Email this issue to others

Export this issue to other formats, such as MS Word

To create a code branch in Bitbucket or Stash, click the Create Branch link

Type: Bug

Priority: Low

Component/s: None

Labels: None

Monkey: Cheeky Monkey

Status: Waiting for Triage (View Workflow)

Resolution: Unresolved

Fix Version/s: None

Assignee: Susan Griffin

Reporter: Bartek Gatz

Votes: 0 Vote for this issue

Watchers: 1 Start watching this issue

Created: 21/Mar/13 3:37 PM

Updated: 16/May/13 3:36 PM

Scheduled Deployment Date: 21/Mar/13

Description

Click to add description

Attachments

hydra.jpg

67 kB 21/Mar/13 3:38 PM

Contributions

1. Innovative Go tool built for providing efficient data collection and analysis; open sourced on GitHub [2]
2. One of the few studies in the field that performs a quantitative analysis rather than a qualitative one
3. One of the very few research projects that investigates such a large number of tickets (over 300,000) extracted from 38 different projects
4. To our knowledge, the first study to conduct sentiment and grammar correctness analyses on software tickets

Related Work

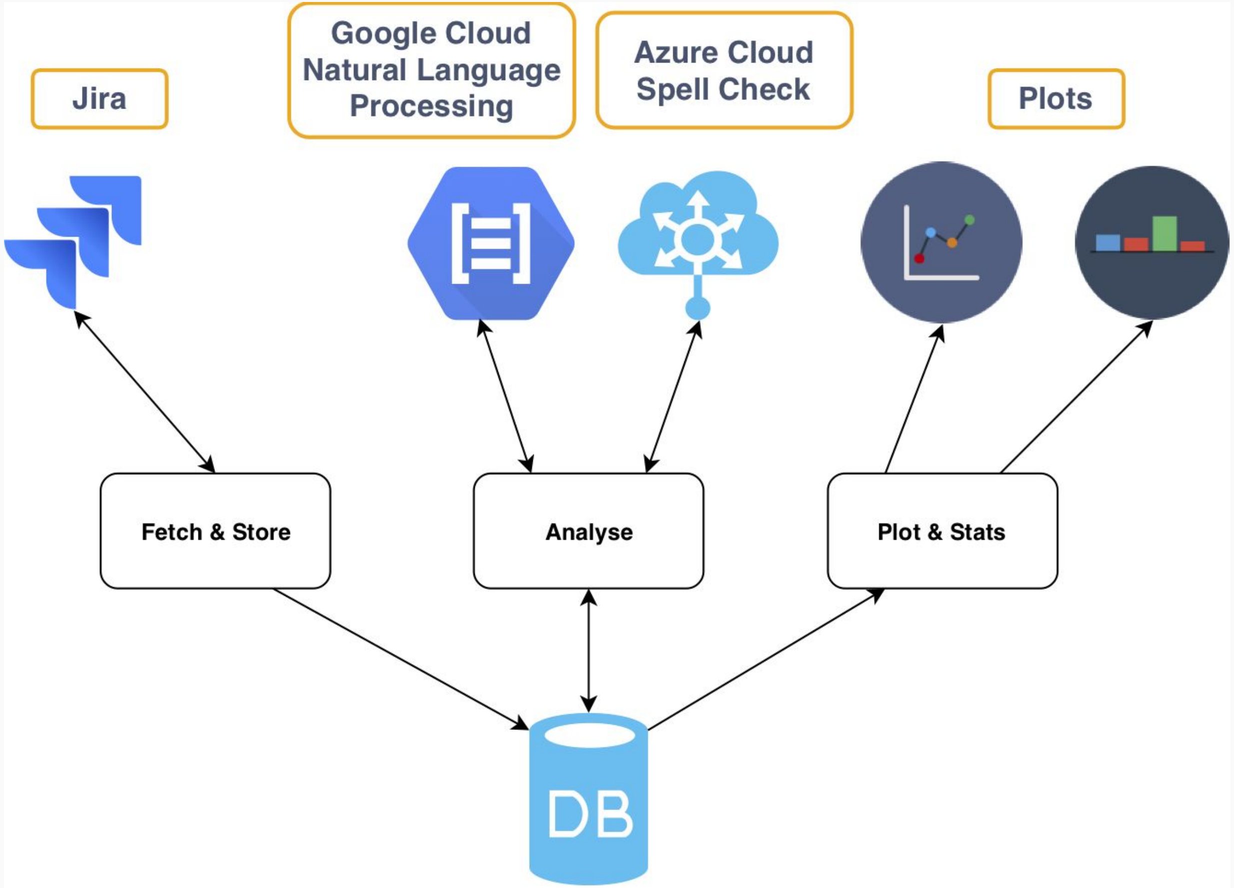
- Bettenburg et al. [1] - qualitative analysis through interviewing developers about what makes for high quality tickets; developed Cuezilla for predicting quality
- Hooimeijer et al. [3] - analyzed over 25,000 tickets; found that readability, attachments and comments can significantly increase the quality of a ticket
- Schroter et al. [4] - investigated the effect stack traces have on ticket lifespan; around 60% of tickets with stack traces were fixed in one of the methods in the frame, 40% in the first frame
- Bettenburg et al. [5] and Prifti et al. [6] looked at bug report duplicates and their consequences; found that they actually bring value to the project, duplicates usually bringing extra information not found in master report

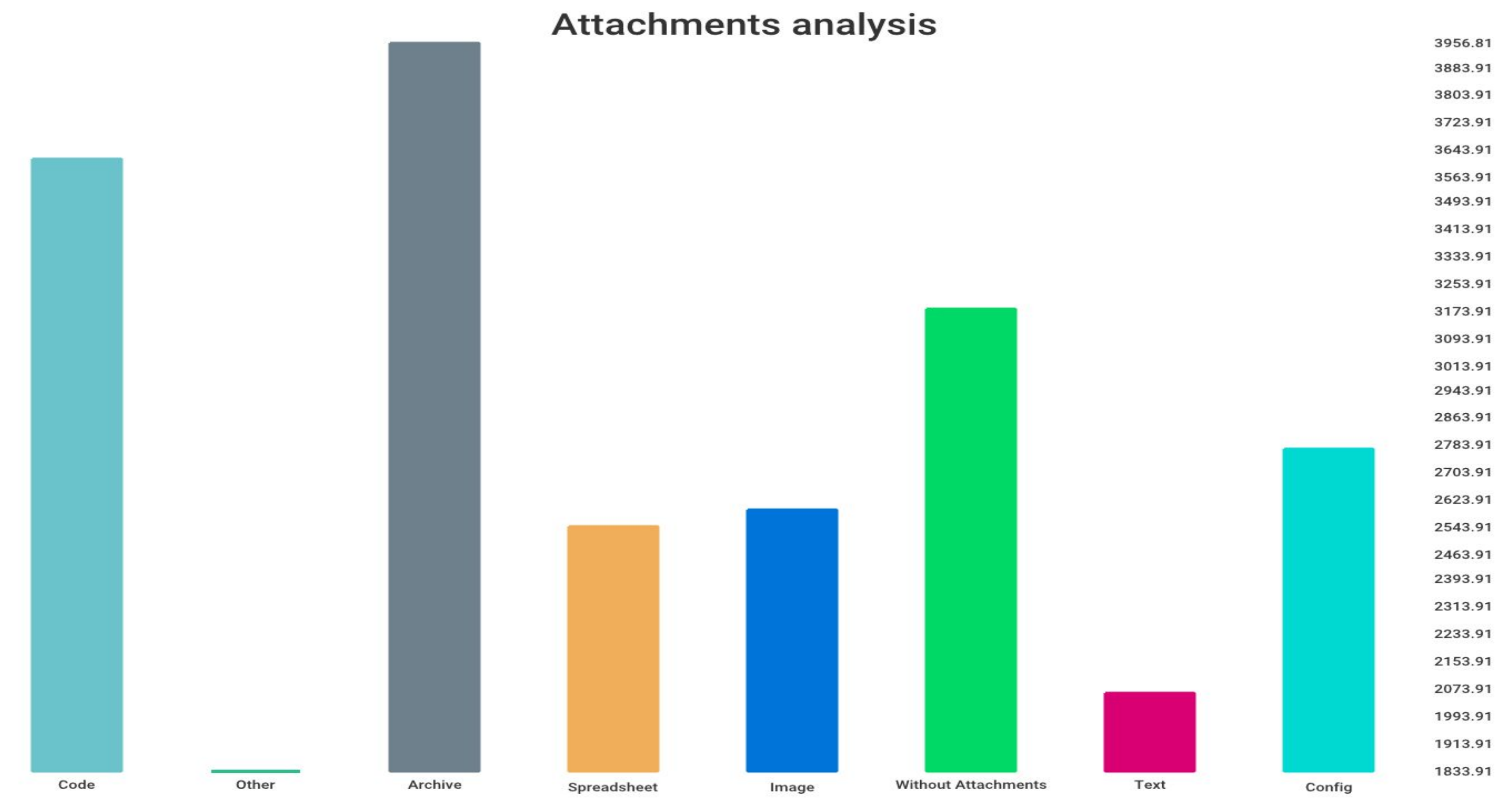
Building the Data Set

- Need of a tool for storing, analyzing, plotting and running statistical tests
-

The Almighty Ticket Guru

Ticket Guru Flow




Attachments analysis
3956.81
3883.91
3803.91
3723.91
3643.91
3563.91
3493.91
3413.91
3333.91
3253.91
3173.91
3093.91
3013.91
2943.91
2863.91
2783.91
2703.91
2623.91
2543.91
2463.91
2393.91
2313.91
2233.91
2153.91
2073.91
1993.91
1913.91
1833.91
Code
Other
Archive
Spreadsheet
Image
Without Attachments
Text
Config

1. N. Bettenburg, S. Just, A. Schroeter, C. Weiss, R. Premraj, and T. Zimmermann. What makes a good bug report? Pages 308–318, 2008
2. https://github.com/nclandrei/ticketguru
3.