



List of definitions

(sort alphabetically: SP 15.04)

- Championship - refers to the Polish Championship in Software Testing
- Client application - part of the application made available to participants to solve tasks during the Polish Software Testing Championships
- Server application - the part of the application responsible for collecting information transferred from the client part of the application
- Demo version of the client application - a version of the client application that will be made available to participants before the championships
- Final version of the client application - the version of the client application that will be made available to participants at the start of the first round of the Polish Software Testing Championships
- Public version - the version of the application that will be made available to all willing parties after the Championship is over.
- Team captain mode - application mode for a participant in the Championship in the team category with rights to report defects
- Team member mode - application mode for a participant in the Championship in the team category with rights limited to looking for defects
- Competitor mode - application mode for a participant in the Championship in the individual category with rights to report defects
- Task report - a report generated by the client application after a player/team has completed work on a given task
- Summary report - a report generated by the server application with a general classification
- Task - the part of the application where the defect sought by the participants is located
- Referee Commission - a group of people appointed by the Championship Organizer to supervise the Championships
- Contractor - the organization that will be contracted to produce the MrBuggy 3 application
- Event log of a client or server application - a file generated by applications containing data on the operation of the application on the client and server side, respectively. Based on it, it is possible to trace the operation of the application.

1 Introduction

This document presents the specification of the MrBuggy3 application. This application will be used during the first round of the Polish Software Testing Championship to determine the participants in the final round. For more information about the Championship itself, please visit <http://www.testingcup.pl/>

2 Purpose of the application

The purpose of the application is to make it possible to conduct and automatically check the results of the first round of the Polish Software Testing Championship and to select participants in the final round.

Due to its educational qualities, it will be made available to all those who are willing to participate after the Championship is over. This will give every testing enthusiast the opportunity to develop and test their testing skills.

The target group of the application's users consists of professional testers, software testing enthusiasts in Poland and all people who want to face testing tasks.

3 Application versions

Three versions of the client application are required:

- Demo version - will be sent to all participants before the Championship in order to run and familiarize themselves with the application and determine the correctness of the application's operation on a given participant's hardware configuration. There should be one test task in the application [in the description of the demo version, descriptions of 2 tasks were given].
- final version - will be made available to participants at the start of the first round of the Polish Software Testing Championship. Among the posted tasks, the task from the demo version (described below) cannot be included.
- public version - will be made available to all willing for educational purposes after the Championship is completed.

The demo, final and public versions differ only in the number of tasks. Other features of the application are the same.

4 Environmental requirements

The MrBuggy 3 application is expected to support the following operating systems:

- Client part:
 - Windows 7
 - Windows 8/8.1
- Server part:
 - Windows 7

5 Functional requirements

The MrBuggy 3 application consists of two parts:

- client part - made available to participants,
- server part - made available to the judging committee.

Data from the client part is delivered to the server part in the form of a text file [specify extension]:

- In the case of a working network connection - directly from the client application,
- In the absence of a network connection - using the export function from the client part and import in the server part. A description of this functionality will be presented later [missing link].

5.1 Client part

This is an application that will be made available to all participants in the first round of the Polish Software Testing Championship. It is designed to:

- enable users to look for one defect in each of the created tasks and report them,
- Generate an event log of the client part.

There are to be no less than 15 tasks (problems) available in the application. In each task there is to be exactly one defect. These defects can belong to groups:

- functional defects,
- non-functional defects:
 - security defects,
 - usability defects.

The application does not have a task generator. All tasks are to be implemented in the application.

The client application must operate in one of three modes in one of the two categories [no links]:

- In the team category:
 - team captain mode,
 - team member mode,
- In the individual category:
 - player mode.

The modes differ in their ability to report defects. In team member mode, this possibility is disabled. Mode selection is made when logging into the application. You cannot change the mode while it is running.

The application must not lose data if it is closed unexpectedly. The backup is to be created every time the "Found defect" button is clicked. It is to take the format of a binary file that will be loaded when the application is reopened.

If the network connection is lost, the user should still be able to perform all activities in the application.

The order of tasks displayed in the client part should be random.

5.2 Server part

This is an application that will be made available to the Judicial Commission. Its purpose is to:

- Collect task reports from players and teams,
- lead the overall classification in two categories: individual and team,
- automatically evaluate the correctness of reported defects in task reports submitted by players/teams,
- allow the Judging Committee to manually change the number of points awarded for a task,
- display the overall classification on an external monitor,
- enable the generation of a summary report taking into account the following data:
 - position in the general classification,
 - The name of the player or team,
 - The number of points awarded for each task of a given competitor/team,
 - The sum of points scored by a given player/team.
- Record all activities (such as a correctly received report, incorrectly received report, correctly evaluated report, etc.) in the event log of the server part [specify the events that should be recorded],
- On an ongoing basis, count the number of task reports received from participants.

6 Description of the user interface

All messages, information and key names in the graphical interface must be in Polish.

6.1 Client part

The application window should be divided into two parts - the "Tasks" window and the "Side Menu" arranged on the right side.

The "Side Menu" includes:

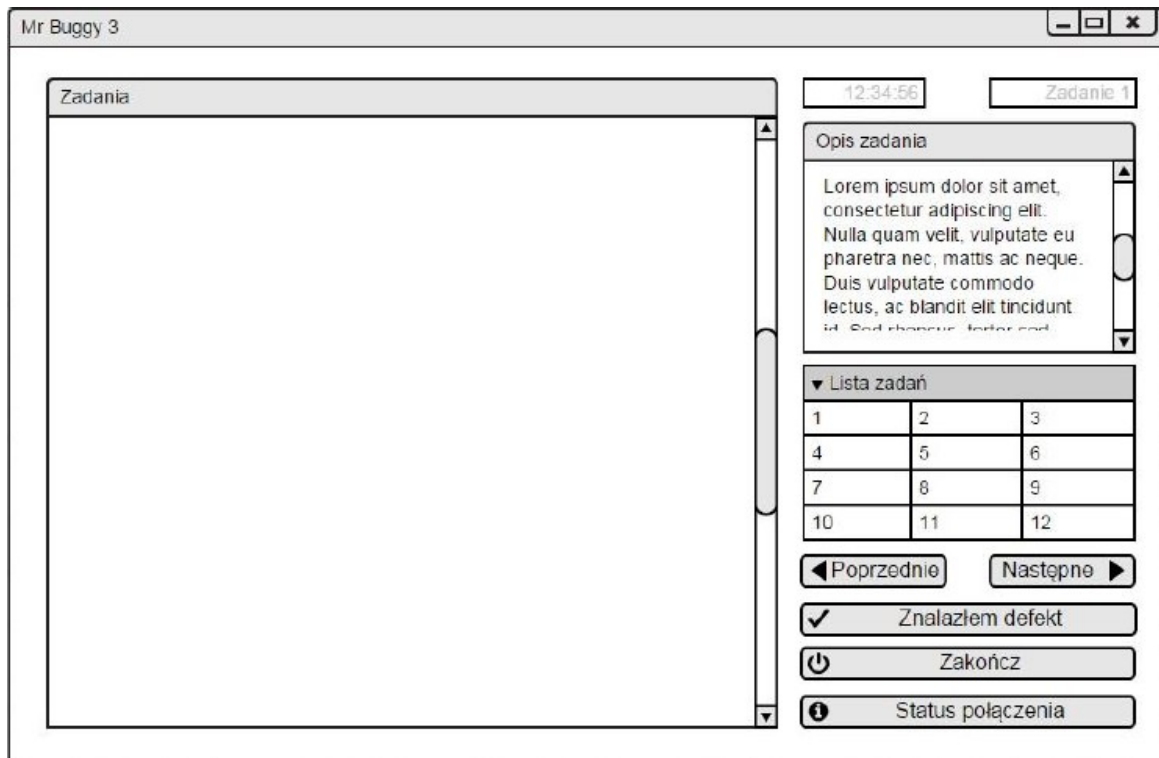
- "Time" field - displays the time until the end of the round (format: hh:mm:ss; hour, minute, second).
- The "Task No." field - gives the number of the task displayed in the "Tasks" window. Task numbering rules are described below.

- The "Task Description" field - contains general information about the task displayed in the "Tasks" field, along with the number of points for the task.
- The "Task list" field - allows you to navigate between tasks. Tasks without an answer, with an answer and currently displayed tasks must be marked with a different color.
- Navigation buttons - "Next" and "Previous" allow you to move to the next and previous task, respectively.
- The "Found defect" button - allows you to report the defect currently displayed in the "Tasks" window. Each time this button is clicked, a backup is created with the current state of the application (to preserve the user's progress in case of failure) and a defect report is sent to the server part of the application. This function is available in all application modes.
- The "Finish" button - to finish working on all tasks and send the answers for evaluation. This action cannot be undone, it can be done only once. To avoid confusion, the user must confirm the desire to perform this action. When the "Finish" button is pressed, all the data about the user and the test tasks solved by him are exported to a binary file. This file can be imported into the server part in case of network connection problems.
- The "Tasks" window - It displays a task in which the user must find defects.
- Connection status - displays information about the Internet connection.

The application window should fit entirely on a monitor screen with a resolution of 1024x768 and be aesthetically pleasing.

The MrBuggy 3 icon must appear in the application window.

The diagram below does not reflect the final design, but is only meant to place the most important elements of the window [the illustration is misleading - minimum number of tasks = 15].



Rysunek 1 Schemat interfejsu użytkownika części klienckiej

6.2 Server part

Access to the server part can be realized through the command line or the graphical user interface of the server part. It is up to the Software Contractor to decide how to access the server part. Nevertheless, all functions of the application must be accessible to users. The server application is to be developed using Java7.

7 Non-functional requirements

7.1 Performance requirements

- The interface response time must be less than 1 second.
- The summary report is supposed to take no longer than 15 seconds to generate.
- The size of the backup file of the client application must not exceed [2.1 MB or 2 MB ?].
- The server application must be able to accept up to 50 user reports at any one time.
- The client application, when launched, must not occupy more than 100MB of the computer's operating memory.
- Switching between tasks must not be longer than 1 second.
- Application performance calculated from the formula:

$$W = \frac{m \cdot f}{(\Delta t)^3} \cdot n$$

Where:

W - application performance,

m - the amount of operating memory in the computer [no

unit], f - the operating frequency of the processor [no unit]m

n - the number of threads of the processor,

t - average interface response time [no unit],

is to be greater than 10000[no unit].

7.2 Security requirements

- Access to the server part of the application must be secured with a login and password,
- logins must be individual for each user of the server part of the application,
- The login must consist of 2 to 8 characters,
- The login must not contain whitespace characters or Polish dialect characters,
- The password must consist of at least 20 characters and contain at least one lowercase letter, one uppercase letter, one number, one special character,
- The password must not contain white characters or Polish dialect characters,
- passwords must be stored in an encrypted format
- The procedure for setting up, restoring and unlocking an account must be implemented,
- A procedure for changing the password must be implemented,
- The account must be locked after entering the wrong password 3 times,
- account tokens are to be generated randomly [token operation should be specified],
- The server part must have the ability to back up the summary report [maintainability? functionality?].

7.3 Reliability requirements

During the year, the average number of failures (understood as the number of unexpected application shutdowns requiring the use of a backup) in a single day must not be greater than 1.

8 Application installation

No application installer is required. MrBuggy 3 is to be a portable application that is to be delivered as a "zip" archive. The unzipped archive must contain the executable file that runs the application and all necessary libraries and resources.

9 Demo version of the client application

Allows participants to try out and familiarize themselves with the client application before the Championship.

Description of the tasks included in this version:

- The task window displays a calculator with the ability to perform only one type of operation - division. The defect is the incorrect operation of dividing by zero. As a result of such an operation, zero is displayed on the screen.
- The task window will display two rectangles. A function will be created to check whether the rectangles overlap (whether there is a common part between them) and display this information. The defect is that if one of the rectangles completely overlaps the other, an incorrect message is displayed that the rectangles do not overlap.

10 Criteria for evaluating defects

Defects in the application are evaluated according to the criterion of importance and are divided into 3 classes [no specification of the division criterion]:

- trivial defects (1 to 2 points),
- normal defects (from 3 to 4 points),
- critical defects (from 5 to 6

points). In addition, the application assigns:

- -2 points for reporting a defect that is a properly functioning feature
- 0 points for not reporting a defect to the task.

The specific scoring for a given task will be assigned by the Judging Committee before the Championship (according to the included work schedule [no schedule attached, or link to it]) and entered into the application by the Contractor of the order.

Functionalities:

1. Login + access without registration
2. Registration
3. Password reminder
4. Navigating between tasks
5. Refreshing the task
6. Reporting defects
7. End of session (tests) + summary
8. Ranking
9. Help
10. About the program - information
11. Automatically check answers
12. Task scoring

13. Task: Registration (1,3)
14. Task: Basket (2, 20, 21)
15. Task: Transfer (4, 6, 19, 24)
16. Task: Conversion to HEX (5)
17. Task: Stopwatch (7)
18. Task: logic gate (8, 18)
19. Task: Watch (9)
20. Task: List of products (10,11,12, 23)
21. Task: Question and Answer (13)
22. Task: CSV (14)
23. Task: graphic files (15,16)
24. Task: Morse alphabet (17)
25. Task: Changing email (22)