

The Saluki Scheduler

Test Document

CS 499

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Introduction

We performed a number of tests to determine the limitations of the Saluki Scheduler. These tests show the limitations of the program with default settings on the webserver. The upper limit of each of these tests may be increased simply by increasing the maximum execution time of a Php script in the Apache configuration file. The limitation come into being because of the complexity of the Algorithm; reworking the algorithm to require fewer iterations and a lower complexity would also increase the efficiency of the program and increase the upper limits of the program.

Test Cases

Test Case Name: Multiple conferences

Use Case Mapping: Creating multiple conference

Purpose: This test will test the ability of users to hold multiple conferences in the database.

The focus of the test is to see if users can add a new conference when multiple conferences already exist in the database.

Testing Procedure:

1. Creating a new conference.
2. Adding input files.
3. Running the scheduling algorithm.
4. Checking the output page and the output files.
5. Continuing step1 to step 4 until an error occurs or have 20 conferences.

Expected Outcome:

- a. The output page should be opened properly.
- b. The output files should be created and opened properly.

Testing result: The test fails when the database has seven conferences and a large number of meetings. The process would fail after the matching algorithm started running. The error message was “**Fatal error:** Maximum execution time of 60 seconds exceeded in **C:\xampp\htdocs\cs499\include\func_db.php** on line **9**”. The error only happened after the database had six processed conferences. After the database had seven processed conferences, the error started occurring. The error sometimes occurred and sometimes did not. Meeting length and break length were set to 30 min and 5 min respectively for all tests.

- The first test, the error occurred when processing the 8th conference with 33,866 meetings in the database.
- The second test, the error occurred when processing the 9th conference with 43,542 meetings in the database.
- The third test, the error occurred when processing the 8th conference with 33,866 meetings in the database.
- The fourth test, the error occurred when processing the 8th conference with 33,866 meetings in the database.

Test Case Name: Maximum Students
Use Case Mapping: Testing how many meetings a set number of students can have
Purpose: This test will test the maximum number of meetings that a certain number of students can have before the program times out.
Testing Procedure: I modified the student list to contain 100 students and used the current 118 teachers in the staff list file. Then I modified the meeting schedule to give all 118 teachers a roughly equal number of meetings and each student the exact same number of meetings. I used a conference length of one day with a meeting length of 30 minutes and no time between meetings. I used no intermissions or teacher exceptions.
Expected Outcome: a. The output page should be opened properly.
b. The output files should be created and opened properly.
Testing result: I was able to schedule up to 7 meetings for each student for a total of 700 meetings. When I tried 8 meetings per student it timed out.

Test Case Name: Maximum Teachers
Use Case Mapping: Testing how many meetings a set number of teachers can have
Purpose: This test will test the maximum number of meetings that a certain number of teachers can have before the program times out.
Testing Procedure: For these tests, the conference was over a 12-hour period with no intermissions. Meetings were 25 minutes long with a 5 minute break between. Each teacher had 10 meetings to be scheduled; no teachers had any exceptions (i.e. times within the conference period they could not have meetings). There also were no errors due to students not receiving meetings. The database was cleared before each attempted scheduling.
Expected Outcome: a. The output page should be opened properly.
b. The output files should be created and opened properly.
Testing result: The first run was with the test data, containing 25 teachers. It was scheduled successfully. The next run, with 50 teachers, was also scheduled successfully. The third, containing 80 teachers, timed out. The fourth, containing 70 teachers, was successful. The fifth, containing 75 teachers, was scheduled successfully. This run was successfully scheduled a second time.

Within the parameters of this experiment, the limit of the number of teachers successfully scheduled appears to be between 75 and 80 teachers.