

**Standard Bank IT Challenge  
Finals  
15 April 2010  
Johannesburg**

## **Introduction**

This is the sixth year that the Standard Bank IT Challenge has been held for Universities in South Africa. Each participating university used the heats to select one team to represent the university. The universities that took part were:

**Nelson Mandela Metropolitan University**

**Rhodes University**

**Stellenbosch University\***

**University of Cape Town**

**University of KwaZulu-Natal**

**University of Limpopo**

**University of Pretoria**

**University of the Western Cape**

**University of the Witwatersrand**

*\*The university has officially changed its name to "Stellenbosch University".  
Afrikaans: "Universiteit Stellebosch".*

Two teams from Standard Bank also took part, although they did not compete for the prizes. These were:

CIB IT – made up of local Standard Bank employees

SBL – made up of employees from the London office

Teams were made up of four members, one of whom acted as Team Manager. To ensure teams reflected the student population, and to create opportunities for more students, teams needed to include members from both genders and at least one member from a historically disadvantaged background. This was a successful innovation and should be refined and encouraged.

This year the Challenge supported three programming languages: Java, C++ and Python. Each team was supplied with a PC and access to a single printer.

The Challenge aims to show both programming ability and teamwork with limited resources.

The Challenge was judged by four judges: Dr Bruce Merry, Dr Carl Hultquist, Max Rabkin and Peter Waker. Peter Waker is a Fellow of the Computer Society of South Africa and acted as Chief Judge. Dr Bruce Merry and Dr Carl Hultquist and Max Rabkin set the problems.

## Competition

Teams were given seven problems to solve: 1(a), 1(b), 2(a), 2(b), 3, 4 and 5. Problem 5 was an "interactive" problem.

Teams were given Problems 1(a) and 5 at the start of the 6-hour competition. Problem 1(b) was issued as soon as a team had submitted 1(a) successfully. Three teams succeeded in solving 1(a) within 6 minutes.

After an hour, teams were given the remainder of the questions with the exception of 2(b) which was only issued on the successful submission of question 2(a).

Teams gained a point for each correct solution when tested against test data. The time to complete a successful outcome on a question was recorded. If a team submitted a failed solution on any question, each failed solution created a 20-minute penalty for that problem.

In the case of the interactive question, each successful submission for Problem 5 counted as a correct submission. In addition the correct solutions were to be tested against each other at the end of the competition period. The winner of this got an extra point, and the second and third had 40 minutes and 20 minutes credited to their total elapsed time.

A breakdown of the submissions problem by problem shows the following:

<b>Result</b>	<b>1(a)</b>	<b>1(b)</b>	<b>2(a)</b>	<b>2(b)</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Total Result</b>
Correct Answers	10	4	7	3	1		16	41
Wrong answers	1	5	4	7				17
Time exceeded	1	18		1		2		22
Abnormal termination	3	3	1				2	9
Compilation failed							1	1
<b>Total</b>	<b>15</b>	<b>30</b>	<b>12</b>	<b>11</b>	<b>1</b>	<b>2</b>	<b>19</b>	<b>90</b>

A breakdown of the submission by language used shows that of the C++ submissions, 33% were correct, while 48% of the Java submissions and 46% of the Python submissions were correct:

<b>Result</b>	<b>C++</b>	<b>Java</b>	<b>Python</b>	<b>Total</b>
CORRECT ANSWERS	3	20	18	41
WRONG ANSWERS		9	8	17
TIME EXCEEDED	4	9	9	22
ABNORMAL TERMINATION	2	3	4	9
COMPILATION FAILED		1		1
<b>TOTAL</b>	<b>9</b>	<b>42</b>	<b>39</b>	<b>90</b>

## Results

There were 90 submitted solutions. 41 of these were correct – the highest number of correct solutions for any of the Challenge events so far.

Only one team (Stellenbosch University) managed to get 7 points.

Two teams were not able to submit valid solutions to the interactive question.

For the interactive question, teams achieved the following ranking:

1. Stellenbosch University
2. University of Cape Town
3. Nelson Mandela Metropolitan University

## Overall results:

1. Stellenbosch University
2. University of KwaZulu-Natal
3. University of Cape Town

The overall university rankings were:

<b>Position Time</b>	<b>University</b>	<b>Points</b>	<b>Elapsed</b>
1	Stellenbosch University	7	16:59
2	University of KwaZulu-Natal	5	09:00
3	University of Cape Town	5	15:13
4	University of the Witwatersrand	3	05:34
5	The Nelson Mandela Metropolitan University	3	05:53
6	University of Pretoria	3	08:00
7	Rhodes University	2	04:52
8	University of the Western Cape	1	03:33
9	University of Limpopo	0	00:00