

General Project Description

Project title: Testing of CTesK abstract data type library.
Project kind: Industrial project
Contractor: Egor Rogov (ISP RAS)
Customer: RedVerst group, ISP RAS
First project stage: 03.2003 – 05.2003
Second project stage: 09.2003 – 10.2003

Project goals

Development of a test suite for regression testing of CTesK abstract data types library. In the first stage of the project a test suite for CTesK 1.0 was developed. In the second stage this test suite was rewritten for new version CTesK 2.0.

Project input

The target system is represented by a library of standard specification types of CTesK. The library contains a number of functions for handling both simple data types (12 data types, 50 functions, 1000 lines of code) and container data types of CTesK (5 data types, 110 functions, 3500 lines of code). For test suite development the source code of the library was used.

Process used

CTesK library was tested with the CTesK tool itself. Thus, the test suite for the library serves as through test for the whole tool. Tests were developed in SeC programming language with Microsoft Visual Studio 6.0 IDE.

Project effort

First stage of the project was performed by one man in two months. Second stage, concerned with transition to the new version of the target system, required one man-month.

Maintenance of the test suite for consistency with the current state of the library is continuing. No new tests are created since the end of the project as the library does not expand.

In the first stage of development 17 errors was revealed, which were immediately fixed. In the second stage 5 new errors were revealed.

Project results

The project demonstrated practical applicability of the CTesK tool for systems written in C programming language testing.

The test suite tested 4500 lines of source code of the target system. The whole test suite consists of 4500 lines of SeC code for simple data types (specifications—1800, mediators—1300, and scenarios—1400) and 8500 lines of code for container data types (specifications—5000, mediators—1500, and scenarios—2000). 22 errors were revealed in total.

Most of errors revealed are concerned with incorrect behavior of functions on boundary values. Test development helps to formalize semantics of such functions.

The developed test suite is used now for regression testing of CTesK tool.