MANIPAL INSTITUTE OF TECHNOLOGY
(A constituent Institute of MANIPAL UNIVERSITY)

MANIPAL - 576 104, KARNATAKA, INDIA

Synopsis

Source Code Analysis plug-in for VBScript

SUBMITTED
BY

STUDENT NAME	REG NO	E-MAIL ADDRESS
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Under the Guidance of:

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External Guide

Rohit Kapoor
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Details of the organization (with postal address):
Blackrock Services India Pvt. Ltd,
Building #14, 14th Floor, DLF Building, Tower C, DLF Cyber City Phase-III, Gurgaon, Haryana 122002, India

Name of external Guide with contact details and email address:
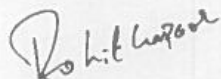(If student is doing project in the dept. of CSE, internal guide details to be given)

Rohit Kapoor
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BlackRock Inc.

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Date of commencement of the project: 18th January, 2016

Project Duration: 24 weeks

Signature of External Guide

SCANNED COPY OF COMPANY'S INTERNSHIP LETTER MENTIONING THE PROJECT DURATION

BLACKROCK®

CONFIDENTIAL

October 12, 2015

Ajay Agarwal
Manipal Institute of Technology,
Manipal.

Dear Ajay

We are pleased to offer you internship with BlackRock Services India Pvt. Ltd ("the Company") as an Intern from **January 18, 2016 until July 15, 2016**. This letter, together with the enclosed written statement of terms and conditions, constitutes our offer to you.
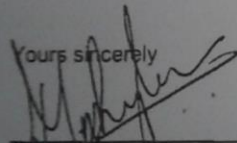
This offer is confidential and should not be disclosed to others. It will remain open for ten working days, after which time it will be deemed to have been withdrawn if you have not accepted by then.
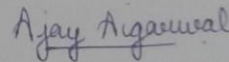
Please signify your acceptance of this offer by signing and return one copy of the written statement of terms and conditions of internship, along with the documents listed in the attachment using the BlackRock envelope provided.

If you have any queries regarding this letter or the enclosures or if you wish to receive copies of the various policies and schemes referred to in the written statement of terms and conditions, please contact email contactHR@blackrock.com.

We are very excited about you joining the Company as an intern and hope you would benefit substantially from your learning at BlackRock.

Yours sincerely

Lokesh Mahajan
Vice President
Human Resources
For and on behalf of
BlackRock Services India Pvt. Ltd

Ajay Agarwal
23-10-2015

1. Introduction:

1.1 Topic

Generation of a plug-in which will perform code analysis on VBS scripts written for test automation. Code analysis will involve checking standard naming standards, dead code, indentation, duplicate lines of code, etc. This plug in will enhance developers' experience, will help in enhancing readability, manageability of the code.

1.2 Organization

BlackRock is an American multinational asset management firm founded in 1988, which has over $4.5 trillion in assets under management. It is by far the world's largest asset manager besides which it also provides advisory to clients (Financial Management Advisory) being under the BlackRock Solutions (BRS). BlackRock firmly believes in the following principles: We are "one BlackRock", we are fiduciary to our clients, we are passionate about our performance and we are Innovators. BlackRock consists of various units which function interdependently. One major department is the APG (Aladdin Product Group). Aladdin (Asset Liability and Debt and Derivative Investment Network) is the platform on which BlackRock runs its complete business. The Aladdin Product Group's mission is to build the best investment management system in the world. The team is organized to provide scalable investment and client systems which are built on a resilient technical infrastructure. The APG group mainly focusses on providing the best technology platform for investment management by developing and building BlackRock's core platform and supporting all the various units of BlackRock.

2. Need for the project:

The problem at hand is currently writing visual basic scripts is a painful job for developers in terms of checking code standards, indentation, checking dead code to name a few.

The target is to build a tool/plug-in which helps to check:
- Whether the naming conventions of attributes and methods is followed.
- For dead code- unused variable, parameters etc.
- For duplicated code which decreases maintainability.
- For classes with high cyclomatic complexity measurements.

3. Objective*:*

To build a plug-in that will check styling and analyze the code of the scripts written in VBScript.

4. Methodology:

The project is carried out in into following parts

- ➢ Understanding of UFT and VBScript
    - o Learning basics of the language including syntax.
    - o Getting familiar with UFT environment to be able to understand lacking functionalities in terms of code analysis and style check.

- ➢ Researching existing tools in the market
    - o Understanding existing tools for VBScript/ eclipse.
    - o Understanding if they can be integrated as a plug in in UFT or are available as workbench with their advantages and disadvantages.

- ➢ Development/ Integration of the tool
    - o Deciding on the language used in the development of the tool or used in integration.
    - o Deciding all rules to be incorporated in relation code analysis/ style check.
    - o Core development of scripts using appropriate language.

- ➢ Testing of tool with sample VB scripts
    - o Examining tool with sample input and reporting output.
    - o Looking for room for improvement by adding additional rules or optimizing the existing code.

5. Project Schedule:

Jan 2016: Induction and Internal Java Development Certification Module-1.

Feb 2016: Internal Java Development Certification Module-2 and Module-3. Project scoping (Setting project objectives).

Mar 2016: Understanding VBS, source code analysis, check styling, understanding existing tool in eclipse.

April 2016: Come up with basic architecture of the solution.

May 2016: Present proof of concept for a sample block.

June 2016: Extending it to complete library.

References:

1. D. C. Atkinson and W. G. Griswold, "*Implementation techniques for efficient data-flow analysis of large programs,*" in IEEE International Conference on Software Maintenance (ICSM'01). Los Alamitos, California, USA: IEEE Computer Society Press, Nov. 2001, pp. 52–61.
2. R. J. C. Atkinson, Stonehenge. Penguin Books, 1956. L. Aversano, L. Cerulo, and M. Di Penta, "*Relating the evolution of design patterns and crosscutting concerns,*" in Proceedings of the 7 th IEEE International Working Conference on Source Code Analysis and Manipulation. Paris, France: IEEE Computer Society, 2007, pp. 180– 192.
3. F. Balmas, "*Using dependence graphs as a support to document programs,*" in Proceedings of the 2nd IEEE International Workshop on Source Code Analysis and Manipulation. Montreal, Canada: IEEE Computer Society, 2002, pp. 145–154
4.] R. Ettinger and M. Verbaere, "*Untangling: a slice extraction refactoring,*" in AOSD '04: Proceedings of the 3rd international conference on Aspectoriented software development. New York, NY, USA: ACM Press, 2004, pp. 93–101.
5. B. Fluri, H. Gall, and M. Pinzger, "*Fine-grained analysis of change couplings,*" in Proceedings of the 5th IEEE International Workshop on Source Code Analysis and Manipulation. Budapest, Hungary: IEEE Computer Society, 2005, pp. 66–74.

Project Details

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<tr><td>Project Duration</td><td>24 weeks</td><td>Date of reporting</td><td></td></tr>
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