PROJECT CHARTER DOCUMENT

Pivi: An eclipse Pug-In for Visual Parallel Programming

Team14

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6. **INTRODUCTION**

This is the Project Charter document for the “An eclipse Pug-In for Visual Parallel Programming” project sponsored by Prof. Javier Gonzalez.

This project is being undertaken by the Team14 development team. The team is comprised of master’s students majoring in Software Engineering at Arizona State University, Tempe. The team members are enrolled in a two-semester capstone project course required of all master’s majors. Successful delivery of the desired software product will fulfill the capstone project requirement for the student team members.

PROJECT SPONSOR

Javier Gonzalez

Arizona State University

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TEAM14 DEVELOPMENT TEAM

|  |  |  |
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* 1. Purpose

The purpose of this charter document is to provide preliminary delineation of roles and responsibilities of Team14, outlines the project objectives, identifies the main stakeholders and defines the authority of project manager.

* 1. Scope

The scope of this document is to give brief overview of the initialisation of the project intended to develop as capstone work. The document provides sponsor’s need, expectations, goals and success criteria of project. It also provides brief summary of the work schedule, cost incurred and basic assumptions and constraints until the final delivery. The contents of this documents should not be interpreted as containing a complete set of agreed upon requirements.

* 1. Definitions, Acronyms and Abbreviations
     1. Definitions

1. Visual Programming: In computing, a visual programming language (VPL) is any programming language that lets users create programs by manipulating program elements graphically rather than by specifying them textually. A VPL allows programming with visual expressions, spatial arrangements of text and graphic symbols, used either as elements of syntax or secondary notation.
2. Parallel Programming: In computing, a parallel programming model is an abstraction of parallel computer architecture, with which it is convenient to express algorithms and their composition in programs. The value of a programming model can be judged on its generality: how well a range of different problems can be expressed for a variety of different architectures, and its performance: how efficiently the compiled programs can execute.
3. Plug-In: In computing, a plug-in is a software component that adds a specific feature to an existing computer program. When a program supports plug-ins, it enables customization. The common examples are the plug-ins used in web browsers to add new features such as search-engines, virus scanners, or the ability to use a new file type such as a new video format.
   * 1. Acronyms
     2. Abbreviations
   1. References

1. <https://en.wikipedia.org/wiki/Visual_programming_language>

2. <https://en.wikipedia.org/wiki/Parallel_programming_model>

3. <https://en.wikipedia.org/wiki/Plug-in_(computing)>

* 1. Overview of Contents of Documents

The next section includes Sponsor’s introduction, background and need of the project from sponsor’s perspective. The subsequent section provides details about the management and control of project development by team14, assumption and constraints during project development and approval from respective authority.

1. **PROJECT SPONSOR AND SPONSOR NEED** 
   1. Sponsor Identification

|  |  |
| --- | --- |
| Name | Javier Gonzalez |
| Company | ASU |
| Division/ Unit | CIDSE |
| Email | javiergs@asu.edu |

* 1. Sponsor’s Business

A sponsor Mr. Javier Gonzalez is a Lecturer in the Computing Informatics and Decision Systems Engineering School at Arizona State and has research interest in software engineering and human computer interaction. The need of the project is for academic purpose. As per discussion over the business need of the project, sponsor explained that project is intended for the academic student to have the empirical knowledge of multi-threading/processing once taught from theoretical point of view. The project is intended to use for internal (Academia) only and have no commercial purpose.

* 1. Description of Need
     1. Vision

Rephrasing the original vision of project provided by sponsor: ”*This Eclipse plug-in focused on facilitating teaching techniques and implications of parallel, concurrent and multicore computing. It builds inside Eclipse an atmosphere of visual programming based on icons. The tool allows students to create a visual model of a problem (by the interconnection of representative icons of atomic structures) building a graph that represent a complete programmable system. Then, automatically generates code of the problem in Java or C/C++, inlaying the necessary elements for concurrent or parallel systems, to compile, execute and run.*”

* + 1. Goal

1. To develop and deliver a software system to the benefit of the project sponsor.
2. To provide the project team with a learning experience in which software engineering principles are applied to the development of a user specified software system.
3. To apply the project development process learned in software engineering courses like SER515 and SER516 to the benefit of successful capstone project.
4. To gain the exposure of industry standard processes involved in capstone project.
   * 1. Success Criteria

|  |  |  |
| --- | --- | --- |
| # | Key Feature | Functionality |
|  | Academic student should have visual programming tool for easier understanding of programming paradigms. | This feature is provided to students as eclipse plug-in for visual programming for each programming concepts. |
|  | Academic student should have empirical tool for understanding multi-threading concepts. | This feature will be provided to students as eclipse plug-in to run code in parallel where parallel programming seems possible. |

# MANAGEMENT PROPOSAL

# 3.1 Resource Requirements:

# In terms of technical requirements pertaining to the project: GitHub, Taiga Scrum board, Slack, Eclipse and other basic tools are required.

# Cost:

# Senior projects, while “expensive” in the use of team members’ time, are undertaken with no expected cost to the sponsor. Consequently, the costs estimated in this subsection are hypothetical and have been developed as examples to illustrate cost estimation concepts used in proposal writing. As such, the cost estimates do not represent costs expected to be incurred or reimbursed.

# Quality Assurance:

# The team will manually test the system and the progress to maintain some degree of quality control during each of the phases.

1. **CONDITIONS AND COMMENTS**
   1. Assumptions and Constraints

Due to the quasi-academic nature of the project, there is a time constraint for the project to be completed by 6 months. The system being developed should be compatible with java as multithreading visualization is only supported by java. This project targets to develop a plug-in for eclipse, using which a user can program a multi-threaded application in java. This is based on the assumption that the existing system is compatible with eclipse IDE.

* 1. Limiting Conditions

The scope of the project is to develop the plugin for students to learn concurrent programming. Here we intend to use visual language, in which a program is built by icons, pipelines and textual elements to create multidimensional expressions. Completing the scope of the project contributes to the successful completion of the project. The project would be further enhanced to include additional functionality to be used at the enterprise level depending on the time.

* + 1. Factors Associated with the Academic Nature of the Project

User guide document and a few examples are additional documents required in order for the developed system to be operationally useful. As this project is mainly targeted for students to learn concurrent programming, the team will have additional task of including further more documentation including installation document, user guides, and basic examples of how the system works. These documents help the students to use the system more efficiently.

* + - 1. General Disclaimer

All students majoring in Software Engineering at ASU are required to complete a two semester, capstone project. The project proposed **“Pivi: An eclipse Pug-In for Visual Parallel Programming”** is expected to fulfil this requirement for the project team of “Giridhar Reddy Peddabuttaiahgari, Nithya Kogaleru, Pujtha Kara, Snehal Shendware, Sri Kiran Panchavati Ganesh”. While the intent of the team is to deliver a high quality product that meets the sponsor’s expectations, neither the students, faculty adviser, or ASU can be held responsible for any errors in the delivered software product, failure to meet any of the specified requirements, or failure to deliver the software. Furthermore, due to the academic nature of the experience and its requirement for graduation, students cannot be paid for the work associated with the project.

* + - 1. Support Limitations

By accepting this proposal, the sponsor recognizes that upon completion of the project and delivery of the proposed system, neither the senior project team nor any other representative of ASU is obligated to provide software maintenance or additional support. Senior project work cannot be extended beyond the completion date set for SER 517.

4.2.1.3 Ownership of the Product

Capstone project is an academic requirement and is not intended to be considered as work by the University or the project’s sponsor in which some form of remuneration is expected. While the software and all of the supporting materials are delivered to the sponsor as a condition of completion of the project, team members share ownership with the sponsor.