XENON COMPILER

Xenon

Development by Javeritos Inc.

National Autonomous University of Mexico
Faculty of Engineering
Computer Engineering

Compilers
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Business Requirements Document

Project Details

Project Name	Xenon compiler
Project Type	Phase I
Project Star Date	February 14
Project End Date	March 17
Project Sponsor	Norberto Ortigoza Márquez
Division	Compilers
Project Manager	Daniel Alberto Zarco Manzanares

Overview

This document defines the high-level requirements of Xenon compiler. It will be for the following activities:

1. Creative solutions design.
2. Developing test plans, test scripts, and their test subcases.
3. Determining project completion.

Document sources

Name	Business Unit	Role
Norberto Ortigoza Márquez	Information Technology	Client

Purpose and Scope

This User Requirements Specification (URS) details of C language compiler (Initiative Xenon) which will be used to compile a source code wrote in C and execute the executable generated by compiler. The compiler must be supporting integers, unary and binary operators.

Responsibilities

Name	Initials	Department	Responsibilities	Title
Daniel Alberto Zarco Manzanare	DZ	Direction and Management	Manager	Project Manager

André Marqueda	AM	Architecture and Planning	Architect	Architect Design
Alberto Castillo	AC	Development	Developer	Dev Analyst
Javier Solano	JS	Version management	Integrator	System Analyst

Design Requirements

Reference	Requirements

U1	Compile a C source code and return a integer when executes de .exe file.
	`int main(){`
	
	`  return 25;`
	`}`

U2	Assembly must write in 64-bits set instructions.
	`Lexing done!`
	`.section __TEXT,__text,regular,pure_instructions`
	`.p2align 4, 0x90`
	`.globl _main ## -- Begin function main`
	`_main: ## @main`
	`mov $25, %rax`
	`push %rax`
	`pop %rbx`
	`ret`
	`push %rax`
	`pop %rbx`
	`push %rax`

U3	Development language must be a matching pattern to easily build an Abstract Syntax Tree (AST), however, phase I the right side's tree must be nil.
	`%Arbol{`
	`hijoIzq: %Arbol{`
	`hijoIzq: %Arbol{`
	`hijoIzq: %Arbol{`
	`hijoIzq: nil,`
	`hijoder: nil,`
	`nodopadre: :constant,`
	`valor: 25`
	`},`

	hijoder: nil, nodopadre: :statement, valor: :return }, hijoder: nil, nodopadre: :funcion, valor: :main }, hijoder: nil, nodopadre: :program, valor: nil }
U4	Source code must have main function where return line code has a decimal integer.

U5	Source code have a single function calls main() which return a decimal integer.
	int main(){
	
	return 25;
	}

U6	The return value only be a decimal integer and can be a variable into a decimal range. return int 25
U7	The assembly syntax must be a AT&T by default in GCC.
U8	The parser (scanner) must show tonek's list form source code. Must check a relational couple to recognize every token. {:type, 1, [:intKeyWord]}, {:ident, 1, [:mainKeyWord]}, {:lParen, 1, []}, {:rParen, 1, []}, {:lBrace, 1, []}, {:ident, 2, [:returnKeyWord]}, {:num, 2, 25}, {:semicolon, 2, []}, {:rBrace, 3, []}

Documentation and regulation

References	Requirements

U9	Nora Sandler's compiler tutorial
U10	Norberto's information classroom

Change History

Edition	Effective date	Description of change	Revised without changes Date / Sign
1.0	February 27	Initial version	2 March
1.1	March 16	Initial version	

Approbation and Validation

Prepared by Management Department
Daniel Alberto Zarco Manzanares
Project Manager
sign

Reviewed and approved by:
Norberto Ortigoza Márquez
Client
sign