

# COSC 251 – Programming Languages

## Project 3

### Spring 2012

**Objective:** Build an interpreter for an esoteric language.

**Your Task:** For this project, you will create an interpreter for the esoteric language Chef (specification linked on the course webpage). This project involves two phases:

Phase 1: By the deadline noted below, you and your team will provide me with three test programs, two that are valid and test some non-trivial subset of the functionality of Chef, and one that is invalid (should generate some interpreter error). These should be well commented using the comment block in Chef and should tell me exactly what the expected output should be. This is worth 20% of your project grade.

Phase 2: By the project deadline, you and your team will build an interpreter for Chef, following the specifications for the language. You may use Java, C++, or Python for this project. Any other languages must be cleared by me before you are allowed to use them. No modules/libraries other than what is included with the standard distribution are allowed.

You will be allowed to work with a limited subset of potential “recipe” words. They are attached as an extra page on this document and are divided into two sections: ingredients and recipe title words. You should ensure that any usage in a recipe makes sense (for example, Hello World Souffle makes sense, Hello Souffle World does not). As you would expect, this is a bigger deal for the recipe title (which should be foodish) than the ingredients list. If the title uses the word “with” (for instance, Fibonacci with Caramel Sauce) this indicates an auxiliary recipe and your interpreter should ensure that at least one exists. Note that the noun before the “with” does not necessarily need to be food-ish.

Also, past-tense of a particular *verb* (see *verb ingredient until verbed* in the specification) will always be the verb with the suffix –ed. Also be sure to use the singular or the plural of an ingredient as appropriate.

You should include all parts noted in the specification of the language, even if the part does not have an apparent usage (Cooking Time, for instance). You need not worry about the “baking” requirement.

Deliverables: the source files for your interpreter. Text files for the test programs due one week before project deadline.

**Learning Targets:** This project does two things from a learning objectives standpoint – first, it gives you experience dealing with esoteric languages. While it is highly unlikely that you will ever have to deal with something like Chef in industry/academia, you might and it’s good to have the experience with a non-traditional language. The second objective is to give you some experience building what amounts to a small compiler. This is something that can occur quite often if you are on the tools end of a project. For instance, many companies will create their own specialized scripting languages (typically based on lua these days) and will require the tools group to create an interpreter for that language.

**Expectations:** The code should be clean, concise, well-commented and correct. If you use an outside source, be sure to document that source. Significant use of outside sources will result in a deduction. Grading rubric will be provided a week ahead of the due date. You may work in teams of three on this project and it is strongly suggested that you do not work solo on this project. You may not work with anyone you worked with for project 1 or 2.

Test programs DUE: April 2nd, 11:59pm via Blackboard

Interpreter DUE: April 9th, 11:59pm via Blackboard

## Dictionary for Chef

**Note: Some of these words are valid for titles, some are valid as ingredients (a couple, both – especially for auxiliary recipes). They are not in any particular order because I just added them as I came up with them.**

casserole	tartare	duk	hash
souffle	fried	duck	boudin
sashimi	broiled	gochujang	andouille
nigiri	grilled	rice	tasso
confit	boiled	soy sauce	crawfish
chili	brownie	sesame oil	nopal
ceviche	cookie	olive oil	monchong
trout	stir-fry	canola oil	seared
bass	oregano	lard	maki
dolphin	parsley	bacon	baked
muskrat	thyme	cippollini	torte
English cucumber	sage	mirin	trifle
walrus	basil	seaweed	phyllo
cake	cilantro	clam	squid ink
pie	jalapeno	gummy panda	bisque
fondue	salsa	pita	honey
martini	lime	salad	anchovies
zucchini	masa	vinaigrette	hearts of palm
bread	black bean	salt	ragout
apple	lobster	pepper	couscous
peach	cod	sugar	asparagus
mango	crab	beet	bonito
peanut	oyster	cream	mustard greens
cashew	parsnip	plantain	snapper
potato	pudding	truffle	almond
sweet potato	chocolate	carrot	strawberry
corn	braised	tamarind	miso
pea	burned	naan	roe
apricot	toasted	harissa	sambal
cherry	feta	shrimp	plum
flambé	cheddar	grit	bento
bison	brie	curry	poi
elk	manchego	corvine	Spam
ostrich	brunost	celery	pumpkin seed
egg	lox	celery root	cranberry
butter	béchamel sauce	leek	mussel
orange	marinara sauce	calamari	cracklin
grapefruit	sauce	mandu	shiitake
blood orange	chicken foot	tempura	chive
tea	chicken	rotini	squash
coffee	geoduck	tagliatelle	spaetzle
espresso	cricket	caper	étouffée
nougat	onion	rhapini	creole
grill	garlic	po-boy	turbot
kebab	ginger	beignet	farina