

This document contains Required Reports Formats for assignments and final project report. It is essential that you organize your project descriptions in required format.

**CS3215: Project Report Format for Assignment #1**

Cover Page:

CS3215, date

Project team: team#

Consultation Hour and Venue:

Team members:

Group-PKB:

name

matric number

e-mail

Group-PQL:

name

matric number

e-mail

Answer questions in the format described in assignment 1.

**--- The end of assignment 1 ---**

## CS3215: Project Report Format for Assignment #2

Write your report for assignment 2 in the format described below.

Cover Page:

CS3215, date

Project team: team#

Consultation Hour and Venue:

Team members:

Group-PKB:

name

matric number

e-mail

Group-PQL:

name

matric number

e-mail

### 1. Associations among ADTs in the PKB

Complete description of associations among ADTs in the PKB given in the Project Handbook. Explain why you need different associations.

### 2. PKB API documentation

Refer to the examples of how to document PKB API given in The Project Handbook. You can follow the suggested format, or modify some details, if you wish, but be sure that the whole team adopts the same API documentation standard, and that all the ADTs in PKB are documented using the same API documentation standard.

Also, be sure that you specify which interface operations are related to which clients (such as parser or design extractor).

For Assignment 2, you need submit only APIs of the following four ADTs:

**2.1. Interface to *VarTable\_adt***

**2.2. Interface to *AST\_adt***

**2.3. Interface to *Modifies\_adt***

**2.4. Interface to *Uses\_adt***

**Remark:** In each subsequent assignment and Final Report, please include up to date complete specifications of the PKB API (for all the ADTs).

### 3. Pseudocode for parser

### 4. Incremental development strategy

Discuss trade-offs in adopting the breath-first vs. depth-first incremental development strategy. Describe your the strategy and, assuming outline in general terms what you would plan to accomplish in each of the three iteration.

--- The end of assignment 2 ---

# CS3215: Project Report Format for Assignment #3 and #4

Write your report for assignments 3 and 4 in the format described below.

Cover page:

CS3215, date

Project team: team#

Consultation Hour and Venue:

Team members:

Group-PKB:

name

matric number

e-mail

Group-PQL:

name

matric number

e-mail

## 1. Project planning and achievements

Describe the plan for the whole project and for this development iteration.

### 1.1. Plan for the whole project (Updated plan in assignment #3/4)

Plan who will be doing what during the project. *Tasks* correspond to considerably large work units such as: design parser for subset of SIMPLE, design PKB API, etc. Define tasks of such size that you feel comfortable with planning.

	iteration 1			iteration 2			iteration 3		
team member	task 1	task2	task 3	task 1	task2	task 3	task 1	task2	task 3
Mary	*		*						
John		*						*	
Tom									
Suzan						*			
Jack									
Jill									

### 1.2. Plan for this development iteration

Plan who will be doing what during this development iteration. *Activity* is a smaller work unit than task, for example, you may have activity such as test interface to AST. Tasks consist of activities. Define activities of such size that you feel comfortable with planning.

	iteration 1				
team member	activity 1	activity 2	activity 3	activity 4	
Mary	*		*		
John		*			
Tom					
Suzan					
Jack					
Jill					

### 1.3. Summary of achievements in this iteration

Describe briefly and clearly the scope of work actually done in this iteration in respect to what was requested in assignment description. Address work done by both groups, Group-PKB and Group-PQL. In particular:

1. Did you implement all the required functions? less? more?

2. What have you done to meet product quality requirements in terms of documentation, design techniques and testing, as described in Project Handbook?
3. Discuss problems encountered that affected project schedule.

## 2. SPA-front end

1. Describe a subset of SIMPLE that you actually parsed.
2. List design abstractions generated by parser.
3. List design abstractions computed by design extractor.
4. Describe parser and design extractor components.

## 3. Program design abstractions (ADTs) in the PKB implemented in this iteration

In this section, list names of ADTs and operation signatures (headers) implemented in this iteration.

Indicate program design abstractions computed on demand when evaluation queries. Computing program design abstraction (e.g., relationship) “on demand” means that you need to do more than just fetching data from PKB to compute that relationship.

## 4. PKB API documentation

Complete PKB API specifications for all the ADTs in the PKB in Assignment #3:

- 4.1. *Interface to VarTable\_adt*
- 4.2. *Interface to AST\_adt*
- 4.3. *Interface to Modifies\_adt*
- 4.4. *Interface to Uses\_adt*
- 4.5. *Interface to ProcTable\_adt*
- 4.6. *Interface to CallsTable\_adt*
- 4.7. *Interface to CFG\_adt*
- 4.8. *Any extra interfaces*

Here specify interfaces that do not fit into any of the above ADTs, for example: Affects, Affects\*. You can include any other operations that you think may be useful (e.g., mappings among ADTs).

As you go through development iterations, some details of PKB APIs will be inevitably modified. So include up to date PKB API specifications in all the subsequent assignments and Final Report.

## 5. Documentation of important design decisions

### 5.1. *High-level design solutions*

Here, describe design solutions that you designed for performance or convenience. For example, if you designed mappings (e.g., between statement numbers and AST), describe them here. To get credit for that, you must explain how you use these design solutions and why they are beneficial.

### 5.2. *Data structures for ADTs in the PKB*

Describe only important data structures.

## 6. Validating program queries

Describe how you validate queries, only in case there is some difference as compared to what you described in your previous assignment.

## 7. Internal representation for program queries

A query tree should be defined as an ADT. Therefore, here describe the interface to this ADT and data structure.

## 8. Design and implementation of query evaluator

Describe the class of program queries that your query evaluator can evaluate at the end of this iteration.

Describe your strategy to query evaluation and optimizations.

In Assignment 4: Describe Basic Query Evaluator (BQE). Justify design decisions.

Describe methods you used to assess the effectiveness of your BQE.

## **9. Testing**

Describe testing as requested in the relevant assignment question.

## **10. Meeting non-functional requirements**

Discuss in details too what extent your program so far meet non-functional project requirements. Relate your achievements to project requirements described in “Required program qualities”:

1. What have you done to make SPA flexible?
2. What have you done to make design simple?
3. What have you doe to make your solution efficient?
4. Is your SPA robust? Can it handle both correct and incorrect input?

## **11. Evaluation of your project so far**

1. Evaluate strengths and limitations of your project so far.
2. In which areas do you plan to improve in the next iteration?

**--- The end of assignment 3/4 ---**

# CS3215: Final Report Format

**Attention: The maximum size of the report is 100 pages. Appendices are extra. Put complete descriptions of interfaces and other bulky descriptions into the appendix.**

Describe the whole project (including both subsystems of SPA) in a single, cohesive final project report. Organize your final project report into sections according to format provided below.

Cover Page:

CS3215, date

Project team: team#

Team members:

Group-PKB:

name	matric number	e-mail
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Group-PQL:

name	matric number	e-mail
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## 0. Project story

In free format, describe your project story, experience. This section is up to you and you may leave it empty.

### 1. Project planning and achievements

In this section, describe the third iteration.

#### 1.1. Updated plan for the whole project

	iteration 1			iteration 2			iteration 3		
team member	task 1	task2	task 3	task 1	task2	task 3	task 1	task2	task 3
Mary	*		*						
John		*						*	
Tom									
Suzan						*			
Jack									
Jill									

#### 1.2. Plan for this development iteration

Update the plan and comment on the updates.

	iteration 3				
team member	activity 1	activity 2	activity 3	activity 4	
Mary	*		*		
John		*			
Tom					
Suzan					
Jack					
Jill					

### **1.3. Summary of achievements in the third iteration**

Describe briefly and clearly the scope of work actually done in this iteration in respect to what was requested in assignment description. Address work done by both groups, Group-PKB and Group-PQL. In particular:

1. Did you implement all the required functions? less? more?
2. What have you done to meet product quality requirements in terms of documentation, design techniques and testing, as described in Project Handbook?
3. Discuss problems encountered that affected project schedule.

## **2. Organization of project work and achievements**

Starting from this section, describe the whole project.

In this section, describe how you organized project work, the actual schedule, etc. Organize your description into the following sub-sections:

### **2.1. The actual schedule for the project, milestones**

### **2.2. Project discussion meetings**

Describe the schedule for project discussion meetings and comment on cooperation among team members

### **2.3. Division of project work**

Describe how you divided work among group members (Group-PKB and Group-PQL) and the contribution of each group member

### **2.4. Summary of achievements**

In this section, summarize on 2-3 pages what you have achieved in this project. Organize your description into the following sub-sections:

1. did you implement all the required functions?
  - a) describe specific features that you did not implement (if any)
  - b) describe extra features that you implemented (if any)
2. briefly describe what have you done to meet product quality requirements in terms of documentation, design techniques and testing; you will elaborate on that later in the report
3. discuss problems encountered; describe problems that affected the schedule (if any); describe any other problems and how you dealt with them

## **3. Program design abstractions (ADTs) in the PKB**

In this section, list names of ADTs and operation signatures (headers) implemented in this iteration.

Indicate program design abstractions computed on demand when evaluation queries. Computing program design abstraction (e.g., relationship) “on demand” means that you need to do more than just fetching data from PKB to compute that relationship.

## **4. PKB API documentation**

Include complete PKB API specifications in the final form:

### **4.1. Interface to VarTable\_adt**

### **4.2. Interface to AST\_adt**

### **4.3. Interface to Modifies\_adt**

### **4.4. Interface to Uses\_adt**

### **4.5. Interface to ProcTable\_adt**

### **4.6. Interface to CallsTable\_adt**

### **4.7. Interface to CFG\_adt**

### **4.8. Any extra interfaces**

Here specify interfaces that do not fit into any of the above ADTs, for example: Affects, Affects\*. You can include any other operations that you think may be useful (e.g., mappings among ADTs).

## **5. Documentation of important design decisions**

### **5.1. High-level design solutions**

Here, describe design solutions that you designed for performance or convenience. For example, if you designed mappings (e.g., between statement numbers and AST), describe them here. To get credit for that, you must explain how you use these design solutions and why they are beneficial.

### **5.2. Data structures for ADTs in the PKB**

Describe only important data structures.

## **6. A class of queries implemented**

Did you implement all the types of queries as described in the project?

If not – which types of queries you did not implement?

## **7. Validation of program queries**

Did you use table driven approach to validate queries? If yes, outline the structure of tables.

## **8. Internal representation for program queries**

A query tree should be defined as an ADT. Therefore, describe the interface to this ADT and data structure here.

## **9. Design and implementation of query evaluator**

Describe Basic Query Evaluator (BQE) and query optimizations. Justify design decisions.

Describe methods you used to assess the effectiveness of your BQE and optimizations.

## **10. Testing**

Describe testing as requested in the relevant assignment question.

## **11. Meeting non-functional requirements**

Discuss in details to what extent you met non-functional project requirements. Relate your achievements to project requirements described in “Required program qualities”:

1. What have you done to make SPA flexible?
2. What have you done to make design simple?
3. What have you done to make your solution efficient?
4. Is your SPA robust? Can it handle both correct and incorrect input?

## **12. Project evaluation**

1. Evaluate strengths and limitations of your design solutions.
2. In what areas you would like to improve your design/implementation if more time was available?
3. Comment on the experience gained in this project in respect to:
  - a) working in the team,
  - b) incremental development,
  - c) complexity of the SPA problem and program solution,
  - d) what did work well?
  - e) what did not work well?
  - f) what would you do differently if you were to start again?
  - g) what did you learn in this project course?
4. Comment on the tools used for the project
  - a) Were the recommended tools useful?
  - b) What other tools did you use (if any), and in what ways were they useful?
  - c) What were the problems you faced when using each tool?
  - d) In which areas would you like to have had more tool support?
5. What management lessons have you learned?
6. What advice would you give to the students who will take this course in the future?
7. Suggest how we could improve the project course.

**--- The end of Final Project Report ---**