

Assignment Kits

These assignment kits contain the forms students need to do the assignments in the textbook *A Discipline for Software Engineering* by Watts S. Humphrey. In using them:

- Provide each student with a copy of the kit for the current lecture.
- Review the assignment kit instructions to ensure that the students understand them.
- Review the chapter and exercise assignments for that kit.
- Urge the students to read the process description, process scripts, and exercise specifications before starting the assignment.
- Emphasize that the students should focus on doing just what is required in a simple and straightforward manner.

The forms provided with each kit are shown on the front page of that kit in ***bold italics***. Only the forms and templates are provided. The scripts and instructions are in the textbook.

Summary Kit Contents

Lecture 1:	Kit cover sheet (page 40)	
	Kit 1	Exercise 1A
Lecture 2:	Kit 2	Exercise 2A Reports R1 and R2
Lecture 3:	Kit 3	Exercise 3A Report R3
Lecture 4:	Kit 4	Exercise 4A
Lecture 5:	Kit 5	Exercise 5A
Lecture 6:	Kit 6	Exercise 6A
Lecture 7:	Kit 7	Report R4
Lecture 8:	Kit 8	Exercise 7A
Lecture 9:	Kit 9	Exercise 8A
Lecture 10:	Kit 10	Exercise 9A
Lecture 11	Kit 11	Exercise 10A
Lecture 12	Kit 12	Continue working on exercise 10A
Lecture 13	Kit 13	Report R5
Lecture 14	Kit 14	Continue working on report R5
Lecture 15	No kit required	No assignment

Forms for the Personal Software Process

by
Watts S. Humphrey

This document contains the forms for each version of the PSP processes in the textbook *A Discipline for Software Engineering* by Watts S. Humphrey. These forms are arranged in sets of 14 assignment kits. One kit is provided for each lecture where a homework assignment is given. As you do the programming exercises in the textbook, you will need copies of the forms for recording and reporting on your results. To obtain these forms, use the kits as follows:

- Keep a master copy of each assignment kit.
- For each programming exercise, make copies of all the forms specified on the front page of the kit for that assignment.
- The new forms and templates provided with each kit are shown in ***bold italics***. The other forms and templates must be obtained from the prior assignment kits.
- The text references for the scripts and the form and template instructions are also provided in the table giving the contents for each kit.
- You will likely find it convenient to keep a master set of all the forms and templates used in the latest process version and to add or to replace items in this master set with each new kit.
- Review the instructions on the front page of the kit to ensure that you understand them.
- Review the exercise specifications in Appendix D of the textbook and the process specifications in Appendix C of the textbook to ensure you understand them.

A summary of the standard assignments and process version contents are given on the first page of each assignment kit.

Assignment Kit # 1

Process version: PSP0

Lecture Number: 1

Assignment:

	Text	Read the preface and Chapters 1 and 2.
	Program 1A	Use PSP0 to write program 1A to calculate the mean and standard deviation from a linked list.

Before writing program 1A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 1 Contents	Instructions	Order to submit assignment
PSP0 Process Scripts		PSP0 Project Plan Summary
C10 PSP0 Script	n/a	Time Recording Log
C11 PSP0 Planning Script	n/a	Defect Recording Log
C12 PSP0 Development Script	n/a	Source program listing
C13 PSP0 Postmortem Script	n/a	Other requested materials
Forms, Templates, and Standards		
<i>C14 PSP0 Project Plan Summary</i>	C15	
<i>C16 Time Recording Log</i>	C17	
<i>C18 Defect Recording Log</i>	C19	
C20 Defect Type Standard	n/a	

Table C14 PSP0 Project Plan Summary

Student	_____			Date	_____
Program	_____			Program #	_____
Instructor	_____			Language	_____
Time in Phase (min.)	Plan	Actual	To Date	To Date %	
Planning		_____	_____	_____	
Design		_____	_____	_____	
Code		_____	_____	_____	
Compile		_____	_____	_____	
Test		_____	_____	_____	
Postmortem		_____	_____	_____	
Total	_____	_____	_____	_____	
Defects Injected		Actual	To Date	To Date %	
Planning		_____	_____	_____	
Design		_____	_____	_____	
Code		_____	_____	_____	
Compile		_____	_____	_____	
Test		_____	_____	_____	
Total Development		_____	_____	_____	
Defects Removed		Actual	To Date	To Date %	
Planning		_____	_____	_____	
Design		_____	_____	_____	
Code		_____	_____	_____	
Compile		_____	_____	_____	
Test		_____	_____	_____	
Total Development		_____	_____	_____	
After Development		_____	_____	_____	

Table C18 Defect Recording Log

Defect Types	
10 Documentation	60 Checking
20 Syntax	70 Data
30 Build. Package	80 Function
40 Assignment	90 System
50 Interface	100
Environment	

Student _____ Date _____
 Instructor _____ Program # _____

Date	Number	Type	Inject	Remove	Fix Time	Fix Defect
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description: _____

Date	Number	Type	Inject	Remove	Fix Time	Fix Defect
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description: _____

Date	Number	Type	Inject	Remove	Fix Time	Fix Defect
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description: _____

Date	Number	Type	Inject	Remove	Fix Time	Fix Defect
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description: _____

Date	Number	Type	Inject	Remove	Fix Time	Fix Defect
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description: _____

Date	Number	Type	Inject	Remove	Fix Time	Fix Defect
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description: _____

Date	Number	Type	Inject	Remove	Fix Time	Fix Defect
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description: _____

Date	Number	Type	Inject	Remove	Fix Time	Fix Defect
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description: _____

Date	Number	Type	Inject	Remove	Fix Time	Fix Defect
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Description: _____

Assignment Kit # 2

Process version: PSP0.1

Lecture Number: 2

Assignment:

	Text	Read Chapters 3 and 4.
	Program 2A	Use PSP0.1 to write program 2A, an LOC counter.
	Report R1	LOC counting standard
	Report R2	Coding standard

Before writing program 2A or the R1 and R2 reports, read the process and exercise specifications in Appendices C and D.

Assignment Kit 2 Contents	Instructions	Order to submit assignment
PSP0.1 Process Scripts		PSP0.1 Project Plan Summary
C21 PSP0.1 Script	n/a	PIP form, including lessons learned
C22 PSP0.1 Planning Script	n/a	Time Recording Log
C23 PSP0.1 Development Script	n/a	Defect Recording Log
C24 PSP0.1 Postmortem Script	n/a	Source program listing
Forms, Templates, and Standards		Report R1
<i>C25 PSP0.1 Project Plan Summary</i>	C26	Report R2
<i>C27 Process Improvement Proposal (PIP)</i>	C28	Other requested materials
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Table C25 PSP0.1 Project Plan Summary

Student	_____	Date	_____
Program	_____	Program #	_____
Instructor	_____	Language	_____

Program Size (LOC)	Plan	Actual	To Date
Base(B)		_____	
		<i>(Measured)</i>	
Deleted (D)		_____	
		<i>(Counted)</i>	
Modified (M)		_____	
		<i>(Counted)</i>	
Added (A)		_____	
		<i>(T-B+D-R)</i>	
Reused (R)		_____	
		<i>(Counted)</i>	
Total New & Changed (N)	_____	_____	_____
		<i>(A+M)</i>	
Total LOC (T)		_____	_____
		<i>(Measured)</i>	
Total New Reused		_____	_____

Time in Phase (min.)	Plan	Actual	To Date	To Date %
Planning	_____	_____	_____	_____
Design	_____	_____	_____	_____
Code	_____	_____	_____	_____
Compile	_____	_____	_____	_____
Test	_____	_____	_____	_____
Postmortem	_____	_____	_____	_____
Total	_____	_____	_____	_____

Defects Injected	Actual	To Date	To Date %
Planning	_____	_____	_____
Design	_____	_____	_____
Code	_____	_____	_____
Compile	_____	_____	_____
Test	_____	_____	_____
Total Development	_____	_____	_____

Defects Removed	Actual	To Date	To Date %
Planning	_____	_____	_____
Design	_____	_____	_____
Code	_____	_____	_____
Compile	_____	_____	_____
Test	_____	_____	_____
Total Development	_____	_____	_____
After Development	_____	_____	_____

Assignment Kit # 3

Process version: PSP0.1

Lecture Number: 3

Assignment:

	Text	Read the first half of Chapter 5.
	Program 3A	Use PSP0.1 to write program 3A, an object LOC counter.
	Report R3	Defect analysis report on programs 1A, 2A, and 3A

Before writing program 3A or report R3, read the process and exercise specifications in Appendices C and D.

Assignment Kit 3 Contents	Instructions	Order to submit assignment
PSP0.1 Process Scripts		PSP0.1 Project Plan Summary
C21 PSP0.1 Script	n/a	PIP form, including lessons learned
C22 PSP0.1 Planning Script	n/a	Time Recording Log
C23 PSP0.1 Development Script	n/a	Defect Recording Log
C24 PSP0.1 Postmortem Script	n/a	Source program listing
Forms, Templates, and Standards		Report R1
C25 PSP0.1 Project Plan Summary	C26	Report R2
C27 Process Improvement Proposal	C28	Other requested materials
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Assignment Kit # 4

Process version: PSP1

Lecture Number: 4

Assignment:

	Text	Read the last half of Chapter 5.
	Program 4A	Use PSP1 to write program 4A to calculate the linear regression parameters from a linked list.

Before writing program 4A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 4 Contents	Instructions	Order to submit assignment
PSP1 Process Scripts		PSP1 Project Plan Summary
C30 PSP1 Script	n/a	Test Report
C31 PSP1 Planning Script	n/a	PIP form, including lessons learned
C32 PSP1 Development Script	n/a	Size Estimating Template
C33 PSP1 Postmortem Script	n/a	Time Recording Log
C36 PROBE Estimating Script	n/a	Defect Recording Log
Forms, Templates, and Standards		Source program listing
<i>C34 PSP1 Project Plan Summary</i>	C35	Other requested materials
<i>C37 Test Report Template</i>	C38	
<i>C39 Size Estimating Template</i>	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Table C34 PSP1 Project Plan Summary

Student	_____			Date	_____
Program	_____			Program #	_____
Instructor	_____			Language	_____
Summary	Plan	Actual	To Date		
LOC/Hour	_____	_____	_____		
Program Size (LOC):	Plan	Actual	To Date		
Base(B)	_____	_____	_____		
	(Measured)	(Measured)			
Deleted (D)	_____	_____	_____		
	(Estimated)	(Counted)			
Modified (M)	_____	_____	_____		
	(Estimated)	(Counted)			
Added (A)	_____	_____	_____		
	(N-M)	(T-B+D-R)			
Reused (R)	_____	_____	_____		
	(Estimated)	(Counted)			
Total New & Changed (N)	_____	_____	_____		
	(Estimated)	(A+M)			
Total LOC (T)	_____	_____	_____		
	(N+B-M-D+R)	(Measured)			
Total New Reused	_____	_____	_____		
	_____	_____	_____		
Time in Phase (min.)	Plan	Actual	To Date	To Date %	
Planning	_____	_____	_____	_____	
Design	_____	_____	_____	_____	
Code	_____	_____	_____	_____	
Compile	_____	_____	_____	_____	
Test	_____	_____	_____	_____	
Postmortem	_____	_____	_____	_____	
Total	_____	_____	_____	_____	
Defects Injected		Actual	To Date	To Date %	
Planning		_____	_____	_____	
Design		_____	_____	_____	
Code		_____	_____	_____	
Compile		_____	_____	_____	
Test		_____	_____	_____	
Total Development		_____	_____	_____	
Defects Removed		Actual	To Date	To Date %	
Planning		_____	_____	_____	
Design		_____	_____	_____	
Code		_____	_____	_____	
Compile		_____	_____	_____	
Test		_____	_____	_____	
Total Development		_____	_____	_____	
After Development		_____	_____	_____	

Table C37 Test Report Template

Student _____ Date _____
 Instructor _____ Program # _____

Test Name/Number	_____
Test Objective	_____
Test Description	_____

Test Conditions	_____

Expected Results	_____

Actual Results	_____

Test Name/Number	_____
Test Objective	_____
Test Description	_____

Test Conditions	_____

Expected Results	_____

Actual Results	_____

Table C39 Size Estimating Template

Student _____	Date _____
Instructor _____	Program # _____
BASE PROGRAM	
BASE SIZE (B) => => => => => => => => =>	LOC _____
LOC DELETED (D) => => => => => => => => =>	_____
LOC MODIFIED (M) => => => => => => => => =>	_____
PROJECTED LOC	
BASE ADDITIONS:	LOC
TYPE	
METHODS	
REL. SIZE	
_____	_____
_____	_____
_____	_____
TOTAL BASE ADDITIONS (BA) => => => => => => =>	_____
NEW OBJECTS:	LOC (NewReuse*)
TYPE ¹	
METHODS	
REL. SIZE	
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
TOTAL NEW OBJECTS (NO) => => => => => => =>	_____
REUSED PROGRAMS	
LOC	
_____	_____
_____	_____
_____	_____
REUSED TOTAL (R) => => => => => => => => =>	_____
Projected LOC:	$P = BA + NO$
Regression Parameter:	β_0
Regression Parameter:	β_1
Estimated New and Changed LOC:	$N = \beta_0 + \beta_1 * (P + M)$
Estimated Total LOC:	$T = N + B - D - M + R$
Estimated Total New Reused (sum of * LOC):	
Prediction Range:	Range
Upper Prediction Interval:	UPI = N + Range
Lower Prediction Interval:	LPI = N - Range
Prediction Interval Percent:	

¹ L-Logic, I-I/O, C-Calculation, T-Text, D-Data, S-Set-up

Assignment Kit # 5

Process version: PSP1.1

Lecture Number: 5

Assignment:

	Text	Read Chapter 6.
	Program 5A	Use PSP1 to write program 5A to do numerical integration using Simpson's rule.

Before writing program 5A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 5 Contents	Instructions	Order to submit assignment
PSP1.1 Process Scripts		PSP1.1 Project Plan Summary
C41 PSP1.1 Script	n/a	Test Report
C42 PSP1.1 Planning Script	n/a	PIP form, including lessons learned
C43 PSP1.1 Development Script	n/a	Size Estimating Template
C44 PSP1.1 Postmortem Script	n/a	Task Planning Template
C36 PROBE Estimating Script	n/a	Schedule Planning Template
Forms, Templates, and Standards		Time Recording Log
<i>C45 PSP1.1 Project Plan Summary</i>	C46	Defect Recording Log
<i>C47 Task Planning Template</i>	C48	Source program listing
<i>C49 Schedule Planning Template</i>	C50	Other requested materials
C37 Test Report Template	C38	
C39 Size Estimating Template	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Table C45 PSP1.1 Project Plan Summary

Student	_____	Date	_____
Program	_____	Program #	_____
Instructor	_____	Language	_____

Summary	Plan	Actual	To Date
LOC/Hour	_____	_____	_____
<i>Planned Time</i>	_____		_____
<i>Actual Time</i>		_____	_____
<i>CPI(Cost-Performance Index)</i>			_____
			(Planned/Actual)
<i>% Reused</i>	_____	_____	_____
<i>% New Reused</i>	_____	_____	_____

Program Size (LOC):	Plan	Actual	To Date
Base(B)	_____	_____	
	(Measured)	(Measured)	
Deleted (D)	_____	_____	
	(Estimated)	(Counted)	
Modified (M)	_____	_____	
	(Estimated)	(Counted)	
Added (A)	_____	_____	
	(N-M)	(T-B+D-R)	
Reused (R)	_____	_____	_____
	(Estimated)	(Counted)	
Total New & Changed (N)	_____	_____	_____
	(Estimated)	(A+M)	
Total LOC (T)	_____	_____	_____
	(N+B-M-D+R)	(Measured)	
Total New Reused	_____	_____	_____

Time in Phase (min.)	Plan	Actual	To Date	To Date %
Planning	_____	_____	_____	_____
Design	_____	_____	_____	_____
Code	_____	_____	_____	_____
Compile	_____	_____	_____	_____
Test	_____	_____	_____	_____
Postmortem	_____	_____	_____	_____
Total	_____	_____	_____	_____

(continued)

Table C45 PSP1.1 Project Plan Summary (continued)

Student	_____	Date	_____
Program	_____	Program #	_____
Instructor	_____	Language	_____
Defects Injected	Actual	To Date	To Date %
Planning	_____	_____	_____
Design	_____	_____	_____
Code	_____	_____	_____
Compile	_____	_____	_____
Test	_____	_____	_____
Total Development	_____	_____	_____
Defects Removed	Actual	To Date	To Date %
Planning	_____	_____	_____
Design	_____	_____	_____
Code	_____	_____	_____
Compile	_____	_____	_____
Test	_____	_____	_____
Total Development	_____	_____	_____
After Development	_____	_____	_____

Assignment Kit # 6

Process version: PSP1.1

Lecture Number: 6

Assignment:

	Text	Read Chapter 7.
	Program 6A	Use PSP1.1 to write program 6A to calculate the linear regression prediction interval.

Before writing program 6A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 6 Contents	Instructions	Order to submit assignment
PSP1.1 Process Scripts		PSP1.1 Project Plan Summary
C41 PSP1.1 Script	n/a	Test Report
C42 PSP1.1 Planning Script	n/a	PIP form, including lessons learned
C43 PSP1.1 Development Script	n/a	Size Estimating Template
C44 PSP1.1 Postmortem Script	n/a	Task Planning Template
C36 PROBE Estimating Script	n/a	Schedule Planning Template
Forms, Templates, and Standards		Time Recording Log
C45 PSP1.1 Project Plan Summary	C46	Defect Recording Log
C47 Task Planning Template	C48	Source program listing
C49 Schedule Planning Template	C50	Other requested materials
C37 Test Report Template	C38	
C39 Size Estimating Template	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Assignment Kit # 7

Lecture Number: 7

Assignment:

	Text	Read Chapter 8.
	Report R4	Write report R4, the midterm analysis report.

Before writing report R4, read the process and exercise specifications in Appendices C and D.

Assignment Kit 7 Contents	Instructions	Order to submit assignment
		Report R4
		PIP form, including lessons learned

Assignment Kit # 8

Process version: PSP2

Lecture Number: 8

Assignment:

Text	Read Chapter 9.
Program 7A	Use PSP2 to write program 7A to determine the correlation of two sets of data, using a linked list.

Before writing program 7A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 8 Contents	Instructions	Order to submit assignment
PSP2 Process Scripts		PSP2 Project Plan Summary
C51 PSP2 Script	n/a	Test Report
C52 PSP2 Planning Script	n/a	PSP2 Design Review Checklist
C53 PSP2 Development Script	n/a	Code Review Checklist
C54 PSP2 Postmortem Script	n/a	PIP form, including lessons learned
C36 PROBE Estimating Script	n/a	Size Estimating Template
Forms, Templates, and Standards		Task Planning Template
<i>C55 PSP2 Project Plan Summary</i>	C46	Schedule Planning Template
<i>C57 PSP2 Design Review Checklist</i>	n/a	Time Recording Log
<i>C58 Code Review Checklist</i>	n/a	Defect Recording Log
C47 Task Planning Template	C48	Source program listing
C49 Schedule Planning Template	C50	Other requested materials
C37 Test Report Template	C38	
C39 Size Estimating Template	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Table C55 PSP2 Project Plan Summary

Student	_____	Date	_____
Program	_____	Program #	_____
Instructor	_____	Language	_____

Summary	Plan	Actual	To Date
LOC/Hour	_____	_____	_____
Planned Time	_____		_____
Actual Time		_____	_____
CPI(Cost-Performance Index)			_____
			(Planned/Actual)
% Reused	_____	_____	_____
% New Reused	_____	_____	_____
Test Defects/KLOC	_____	_____	_____
Total Defects/KLOC	_____	_____	_____
Yield %	_____	_____	_____

Program Size (LOC):	Plan	Actual	To Date
Base(B)	_____	_____	_____
	(Measured)	(Measured)	
Deleted (D)	_____	_____	_____
	(Estimated)	(Counted)	
Modified (M)	_____	_____	_____
	(Estimated)	(Counted)	
Added (A)	_____	_____	_____
	(N-M)	(T-B+D-R)	
Reused (R)	_____	_____	_____
	(Estimated)	(Counted)	
Total New & Changed (N)	_____	_____	_____
	(Estimated)	(A+M)	
Total LOC (T)	_____	_____	_____
	(N+B-M-D+R)	(Measured)	
Total New Reused	_____	_____	_____
Upper Prediction Interval (70%)	_____	_____	_____
Lower Prediction Interval (70%)	_____	_____	_____

Time in Phase (min.)	Plan	Actual	To Date	To Date %
Planning	_____	_____	_____	_____
Design	_____	_____	_____	_____
Design review	_____	_____	_____	_____
Code	_____	_____	_____	_____
Code review	_____	_____	_____	_____
Compile	_____	_____	_____	_____
Test	_____	_____	_____	_____
Postmortem	_____	_____	_____	_____
Total	_____	_____	_____	_____
Total Time UPI (70%)	_____	_____	_____	_____
Total Time LPI (70%)	_____	_____	_____	_____

(continued)

Table C55 PSP2 Project Plan Summary (continued)

Student				Date	
Program				Program #	
Instructor				Language	
Defects Injected	<i>Plan</i>	<i>Actual</i>	<i>To Date</i>	<i>To Date %</i>	
Planning					
Design					
<i>Design review</i>					
Code					
<i>Code review</i>					
Compile					
Test					
Total Development					
Defects Removed	<i>Plan</i>	<i>Actual</i>	<i>To Date</i>	<i>To Date %</i>	
Planning					
Design					
<i>Design review</i>					
Code					
<i>Code review</i>					
Compile					
Test					
Total Development					
After Development					
<i>Defect Removal Efficiency</i>	<i>Plan</i>	<i>Actual</i>	<i>To Date</i>		
<i>Defects/Hour - Design review</i>					
<i>Defects/Hour - Code review</i>					
<i>Defects/Hour - Compile</i>					
<i>Defects/Hour - Test</i>					
<i>DRL(DLDR/UT)</i>					
<i>DRL(CodeReview/UT)</i>					
<i>DRL(Compile/UT)</i>					

Table C57 C++ PSP2 Design Review Checklist

PROGRAM NAME AND #:

Purpose	To guide you in conducting an effective design review				
General	As you complete each review step, check that item in the box to the right. Complete the checklist for one program unit before you start to review the next.				
Complete	Ensure that the requirements, specifications, and high-level design are completely covered by the design: - all specified outputs are produced - all needed inputs are furnished - all required includes are stated				
Logic	Verify that program sequencing is proper: - that stacks, lists, etc. are in the proper order - that recursion unwinds properly Verify that all loops are properly initiated, incremented, and terminated				
Special Cases	Check all special cases: - empty, full, minimum, maximum, negative, zero - out of limits, overflow, underflow - ensure "impossible" conditions are absolutely impossible - handle all incorrect input conditions				
Functional use	Verify that all functions, procedures, or objects are fully understood and properly used Verify that all externally referenced abstractions are precisely defined				
Names	Verify that: - all special names and types are clear or specifically defined - the scopes of all variables and parameters are self-evident or defined - all named objects are used within their declared scopes				
Standards	Review the design for conformance to all applicable design standards				

Table C58 C++ Code Review Checklist

PROGRAM NAME AND #:

Purpose	To guide you in conducting an effective code review.				
General	As you complete each review step, check that item in the box to the right. Complete the checklist for one program unit before you start to review the next.				
Complete	Verify that the code covers all the design.				
Includes	Verify that includes are complete				
Initialization	Check variable and parameter initialization: - at program initiation - at start of every loop - at function/procedure entry				
Calls	Check function call formats: - pointers - parameters - use of '&'				
Names	Check name spelling and use: - is it consistent? - is it within declared scope? - do all structures and classes use '.' reference?				
Strings	Check that all strings are - identified by pointers and - terminated in NULL.				
Pointers	Check that - pointers are initialized NULL - pointers are deleted only after new, and - new pointers are always deleted after use.				
Output Format	Check the output format: - line stepping is proper - spacing is proper				
{ } Pairs	Ensure that the { } are proper and matched				
Logic Operators	Verify the proper use of ==, =, , and so on. Check every logic function for proper ().				
Line by Line Check	Check every LOC for - instruction syntax and - proper punctuation.				
Standards	Ensure that the code conforms to the coding standards.				
File Open and Close	Verify that all files are - properly declared, - opened, and - closed.				

Assignment Kit # 9

Process version: PSP2

Lecture Number: 9

Assignment:

Text	Read appendix B and do the examples.
Program 8A	Use PSP2 to write program 8A to sort a linked list.

Before writing program 8A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 9 Contents	Instructions	Order to submit assignment
PSP2 Process Scripts		PSP2 Project Plan Summary
C51 PSP2 Script	n/a	Test Report
C52 PSP2 Planning Script	n/a	PSP2 Design Review Checklist
C53 PSP2 Development Script	n/a	Code Review Checklist
C54 PSP2 Postmortem Script	n/a	PIP form, including lessons learned
C36 PROBE Estimating Script	n/a	Size Estimating Template
Forms, Templates, and Standards		Task Planning Template
C55 PSP2 Project Plan Summary	C46	Schedule Planning Template
C57 PSP2 Design Review Checklist	n/a	Time Recording Log
C58 Code Review Checklist	n/a	Defect Recording Log
C47 Task Planning Template	C48	Source program listing
C49 Schedule Planning Template	C50	Other requested materials
C37 Test Report Template	C38	
C39 Size Estimating Template	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Assignment Kit # 10

Process version: PSP2.1

Lecture Number: 10

Assignment:

Text	Read Chapter 10.
Program 9A	Use PSP2.1 to write program 9A to do a Chi-squared test for a normal distribution.

Before writing program 9A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 10 Contents	Instructions	Order to submit assignment
PSP2.1 Process Scripts		PSP2.1 Project Plan Summary
C59 PSP2.1 Script	n/a	Test Report
C60 PSP2.1 Planning Script	n/a	PSP2.1 Design Review Checklist
C61 PSP2.1 Development Script	n/a	Code Review Checklist
C62 PSP2.1 Postmortem Script	n/a	PIP form, including lessons learned
C36 PROBE Estimating Script	n/a	Size Estimating Template
Forms, Templates, and Standards		Task Planning Template
<i>C63 PSP2.1 Project Plan Summary</i>	C64	Schedule Planning Template
<i>C65 PSP2.1 Design Review Checklist</i>	n/a	Operational Scenario Template
<i>C66 Operational Scenario Template</i>	C67	Functional Specification Template
<i>C68 Functional Specification Template</i>	C69	State Specification Template
<i>C70 State Specification Template</i>	C71	Logic Specification Template
<i>C72 Logic Specification Template</i>	C73	Time Recording Log

(continued)

Assignment Kit # 10 (continued)

Assignment Kit 10 Contents	Instructions	Order to submit assignment
C58 Code Review Checklist	n/a	Defect Recording Log
C47 Task Planning Template	C48	Source program listing
C49 Schedule Planning Template	C50	Other requested materials
C37 Test Report Template	C38	
C39 Size Estimating Template	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Table C63 PSP2.1 Project Plan Summary

Student	_____	Date	_____
Program	_____	Program #	_____
Instructor	_____	Language	_____

Summary	Plan	Actual	To Date
LOC/Hour	_____	_____	_____
Planned Time	_____	_____	_____
Actual Time	_____	_____	_____
CPI(Cost-Performance Index)			_____
			(Planned/Actual)
% Reused	_____	_____	_____
% New Reused	_____	_____	_____
Test Defects/KLOC	_____	_____	_____
Total Defects/KLOC	_____	_____	_____
Yield %	_____	_____	_____
% <i>Appraisal COQ</i>	_____	_____	_____
% <i>Failure COQ</i>	_____	_____	_____
<i>COQ A/F Ratio</i>	_____	_____	_____

Program Size (LOC):	Plan	Actual	To Date
Base(B)	_____	_____	_____
	(Measured)	(Measured)	
Deleted (D)	_____	_____	_____
	(Estimated)	(Counted)	
Modified (M)	_____	_____	_____
	(Estimated)	(Counted)	
Added (A)	_____	_____	_____
	(N-M)	(T-B+D-R)	
Reused (R)	_____	_____	_____
	(Estimated)	(Counted)	
Total New & Changed (N)	_____	_____	_____
	(Estimated)	(A+M)	
Total LOC (T)	_____	_____	_____
	(N+B-M-D+R)	(Measured)	
Total New Reused	_____	_____	_____
Upper Prediction Interval (70%)	_____	_____	_____
Lower Prediction Interval (70%)	_____	_____	_____

Time in Phase (min.)	Plan	Actual	To Date	To Date %
Planning	_____	_____	_____	_____
Design	_____	_____	_____	_____
Design review	_____	_____	_____	_____
Code	_____	_____	_____	_____
Code review	_____	_____	_____	_____
Compile	_____	_____	_____	_____
Test	_____	_____	_____	_____
Postmortem	_____	_____	_____	_____
Total	_____	_____	_____	_____
Total Time UPI (70%)	_____	_____	_____	_____
Total Time LPI (70%)	_____	_____	_____	_____

(continued)

Table C63 PSP2.1 Project Plan Summary (continued)

Student	_____	Date	_____
Program	_____	Program #	_____
Instructor	_____	Language	_____

Defects Injected	Plan	Actual	To Date	To Date %
Planning	_____	_____	_____	_____
Design	_____	_____	_____	_____
Design review	_____	_____	_____	_____
Code	_____	_____	_____	_____
Code review	_____	_____	_____	_____
Compile	_____	_____	_____	_____
Test	_____	_____	_____	_____
Total Development	_____	_____	_____	_____

Defects Removed	Plan	Actual	To Date	To Date %
Planning	_____	_____	_____	_____
Design	_____	_____	_____	_____
Design review	_____	_____	_____	_____
Code	_____	_____	_____	_____
Code review	_____	_____	_____	_____
Compile	_____	_____	_____	_____
Test	_____	_____	_____	_____
Total Development	_____	_____	_____	_____
After Development	_____	_____	_____	_____

Defect Removal Efficiency	Plan	Actual	To Date
Defects/Hour - Design review	_____	_____	_____
Defects/Hour - Code review	_____	_____	_____
Defects/Hour - Compile	_____	_____	_____
Defects/Hour - Test	_____	_____	_____
DRL(DLDR/UT)	_____	_____	_____
DRL(CodeReview/UT)	_____	_____	_____
DRL(Compile/UT)	_____	_____	_____

Table C65 C++ PSP2.1 Design Review Checklist

PROGRAM NAME AND #:

Purpose	To guide you in conducting an effective design review				
General	As you complete each review step, check that item in the box to the right. Complete the checklist for one program unit before you start to review the next.				
Complete	Ensure that the requirements, specifications, and high-level design are completely covered by the design: - all specified outputs are produced - all needed inputs are furnished - all required includes are stated				
<i>State machine</i>	<i>Verify the state machine design:</i> - <i>The structure has no hidden traps or loops.</i> - <i>It is complete - that is, all possible states have been identified.</i> - <i>It is orthogonal - that is, for every set of conditions there is one and only one possible next state.</i> - <i>The transitions from each state are complete and orthogonal. That is, from every state, a unique next state is defined for every possible combination of state machine input values.</i>				
Logic	Verify that program sequencing is proper: - that stacks, lists, etc. are in the proper order - that recursion unwinds properly Verify that all loops are properly initiated, incremented, and terminated				
Special Cases	Check all special cases: - empty, full, minimum, maximum, negative, zero - out of limits, overflow, underflow - ensure "impossible" conditions are absolutely impossible - handle all incorrect input conditions				
Functional use	Verify that all functions, procedures, or objects are fully understood and properly used Verify that all externally referenced abstractions are precisely defined				
Names	Verify that: - all special names and types are clear or specifically defined - the scopes of all variables and parameters are self-evident or defined - all named objects are used within their declared scopes				
Standards	Review the design for conformance to all applicable design standards				

Table C70 State Specification Template

Student _____	Date _____
Program _____	Program # _____
Instructor _____	Language _____
Object _____	Routine _____

State #1	description	attributes
next state #1	transition conditions	
next state #2		
...		
...		
next state # n		

State #2	description	attributes
next state #1	transition conditions	
next state #2		
...		
...		
next state # n		

...

State #n	description	attributes
next state #1	transition conditions	
next state #2		
...		
...		
next state # n		

Assignment Kit # 11

Process version: PSP3

Lecture Number: 11

Assignment:

Text	Read Chapter 11.
Program 10A	Use PSP3 to write program 10A to calculate the multiple regression parameters and prediction intervals, using a linked list.

Before writing program 10A, read the process and exercise specifications in Appendices C and D.

Assignment Kit 11 Contents	Instructions	Order to submit assignment
PSP3 Process Scripts		PSP3 Project Plan Summary
C74 PSP3 Script	n/a	Cycle Summary Forms
C75 PSP3 Planning Script	n/a	Test Report
C76 High Level Design Script	n/a	PSP3 Design Review Checklist
C77 High Level Design Review Script	n/a	Code Review Checklist
C78 PSP3 Development Script	n/a	Issue Tracking Log
C79 PSP3 Postmortem Script	n/a	PIP form, including lessons learned
C36 PROBE Estimating Script	n/a	Size Estimating Template
Forms, Templates, and Standards		Task Planning Template
<i>C80 PSP3 Project Plan Summary</i>	C81	Schedule Planning Template
<i>C82 Cycle Summary</i>	C83	Operational Scenario Template
<i>C84 PSP3 Design Review Checklist</i>	n/a	Functional Specification Template
<i>C85 Issue Tracking Log</i>	C86	State Specification Template

(continued)

Assignment Kit # 11 (continued)

Assignment Kit 11 Contents	Instructions	Order to submit assignment
C66 Operational Scenario Template	C67	Logic Specification Template
C68 Functional Specification Template	C69	Time Recording Log
C70 State Specification Template	C71	Defect Recording Log
C72 Logic Specification Template	C73	Source program listing
C58 Code Review Checklist	n/a	Other requested materials
C47 Task Planning Template	C48	
C49 Schedule Planning Template	C50	
C37 Test Report Template	C38	
C39 Size Estimating Template	C40	
C27 Process Improvement Proposal	C28	
C29 Coding Standard	n/a	
C16 Time Recording Log	C17	
C18 Defect Recording Log	C19	
C20 Defect Type Standard	n/a	

Table C80 PSP3 Project Plan Summary

Student	_____	Date	_____
Program	_____	Program #	_____
Instructor	_____	Language	_____

Summary	Plan	Actual	To Date	
LOC/Hour	_____	_____	_____	
Planned Time	_____	_____	_____	
Actual Time	_____	_____	_____	
CPI(Cost-Performance Index)			(Planned/Actual)	
% Reused	_____	_____	_____	
% New Reused	_____	_____	_____	
Test Defects/KLOC	_____	_____	_____	
Total Defects/KLOC	_____	_____	_____	
Yield	_____	_____	_____	
% Appraisal COQ	_____	_____	_____	
% Failure COQ	_____	_____	_____	
COQ A/F Ratio	_____	_____	_____	
Program Size (LOC):	Plan	Actual	To Date	
Base(B)	_____	_____	_____	
Deleted (D)	(Measured)	(Measured)	_____	
Modified (M)	(Estimated)	(Counted)	_____	
Added (A)	(Estimated)	(Counted)	_____	
Reused (R)	(N-M)	(T-B+D-R)	_____	
Total New & Changed (N)	(Estimated)	(Counted)	_____	
Total LOC (T)	(Estimated)	(A+M)	_____	
Total New Reused	(N+B-M-D+R)	(Measured)	_____	
Upper Prediction Interval (70%)	_____	_____	_____	
Lower Prediction Interval (70%)	_____	_____	_____	
Time in Phase (min.)	Plan	Actual	To Date	To Date %
Planning	_____	_____	_____	_____
<i>High-level design</i>	_____	_____	_____	_____
<i>High-level design review</i>	_____	_____	_____	_____
Detailed design	_____	_____	_____	_____
Detailed design review	_____	_____	_____	_____
Code	_____	_____	_____	_____
Code review	_____	_____	_____	_____
Compile	_____	_____	_____	_____
Test	_____	_____	_____	_____
Postmortem	_____	_____	_____	_____
Total	_____	_____	_____	_____
Total Time UPI (70%)	_____	_____	_____	_____
Total Time LPI (70%)	_____	_____	_____	_____

(continued)

Table C80 PSP3 Project Plan Summary (continued)

Student				Date	
Program				Program #	
Instructor				Language	
Defects Injected	Plan	Actual	To Date	To Date %	
Planning					
<i>High-level design</i>					
<i>High-level design review</i>					
Detailed design					
Detailed design review					
Code					
Code review					
Compile					
Test					
Total Development					
Defects Removed	Plan	Actual	To Date	To Date %	
Planning					
<i>High-level design</i>					
<i>High-level design review</i>					
Detailed design					
Detailed design review					
Code					
Code review					
Compile					
Test					
Total Development					
After Development					
Defect Removal Efficiency	Plan	Actual	To Date		
Defects/Hour - Design review					
Defects/Hour - Code review					
Defects/Hour - Compile					
Defects/Hour - Test					
DRL(DLDR/UT)					
DRL(CodeReview/UT)					
DRL(Compile/UT)					

Table C84 C++ PSP3 Design Review Checklist

PROGRAM NAME AND #:

Purpose	To guide you in conducting an effective design review				
General	As you complete each review step, check that item in the box to the right. Complete the checklist for one program unit before you start to review the next. <i>As you encounter issues that must be deferred, record them in the issue tracking log.</i>				
Complete	Ensure that the requirements, specifications, and high-level design are completely covered by the design: - all specified outputs are produced - all needed inputs are furnished - all required includes are stated				
State machine	Verify the state machine design: - The structure has no hidden traps or loops. - It is complete - that is, all possible states have been identified. - It is orthogonal - that is, for every set of conditions there is one and only one possible next state. - The transitions from each state are complete and orthogonal. That is, from every state, a unique next state is defined for every possible combination of state machine input values.				
Logic	Verify that program sequencing is proper: - that stacks, lists, etc. are in the proper order - that recursion unwinds properly Verify that all loops are properly initiated, incremented, and terminated <i>Use defined methods such as: execution tables, trace tables, or mathematical verification</i>				
Special Cases	Check all special cases: - empty, full, minimum, maximum, negative, zero - out of limits, overflow, underflow - ensure "impossible" conditions are absolutely impossible - handle all incorrect input conditions				
Functional use	Verify that all functions, procedures, or objects are fully understood and properly used Verify that all externally referenced abstractions are precisely defined				
Names	Verify that: - all special names and types are clear or specifically defined - the scopes of all variables and parameters are self-evident or defined - all named objects are used within their declared scopes				
Standards	Review the design for conformance to all applicable design standards				

Table C85 PSP Issue Tracking Log

Student _____	Date _____
Program _____	Program # _____
Instructor _____	Language _____

Issue #: _____ Date: _____ Phase: _____ Description: _____ _____
Resolution: _____ Date: _____
Issue #: _____ Date: _____ Phase: _____ Description: _____ _____
Resolution: _____ Date: _____
Issue #: _____ Date: _____ Phase: _____ Description: _____ _____
Resolution: _____ Date: _____
Issue #: _____ Date: _____ Phase: _____ Description: _____ _____
Resolution: _____ Date: _____
Issue #: _____ Date: _____ Phase: _____ Description: _____ _____
Resolution: _____ Date: _____

Assignment Kit # 12

Lecture Number: 12

Assignment:

	Text	Read Chapter 12.
	Program 10A	Finish developing program 10A.

Assignment Kit # 13

Lecture Number: 13

Assignment:

	Text	Read Chapter 13.
	Report R5	Write report R5, the final report.

Before writing report R5, read the exercise specifications in Appendix D.

Assignment Kit 13 Contents	Instructions	Order to submit assignment
		Report R5
		PIP form, including lessons learned

Assignment Kit # 14

Lecture Number: 14

Assignment:

	Text	Read Chapter 14.
	Report R5	Finish writing report R5.