

CSE 4361 SOFTWARE DESIGN PATTERNS

FALL 2013

1 General

Lectures: TTh 3:30PM-4:50PM, ERB 130
Instructor: David C. Kung, ERB 532, 817-272-3627
Email: k u n g AT u t a DOT e d u, Fax: 817-272-3784
Ftp page: <ftp://marge.uta.edu/home/course/cse4361/>, login information will be provided on the first day of class
Office Hours: 10:00AM-11:30AM TTh, or by appointment
GTA: TBA, Office: TBA, Office Hours: TBA

2 Course Objective

CSE 4361 SOFTWARE DESIGN PATTERNS (3-0) In-depth study of software design patterns including description of patterns, design principles and techniques used by patterns as well as application of patterns to solving practical design problems. Team project. Prerequisites: CSE 3310 and CSE 3311.

3 Textbook

David Kung, “Object-Oriented Software Engineering: An Agile Unified Methodology,” McGraw-Hill 2013. IMPORTANT: Make sure you get the right editions, that is, ISBN must be 978-0073376257 and the cover of the book must look like in Figure 1.

4 Reference Books and Articles

E. Gamma, et al. “Design Patterns: Elements of Reusable Object-Oriented Software,” Addison-Wesley, 1995.

5 About FTP

You will need to download lecture notes, homework, project descriptions, and project related materials, etc. from the ftp site. The ftp address is <ftp://marge.uta.edu>. You should be able to ftp within the UTA campus but ftp from outside is problematic due to Office of Information Technology implemented security measures. The following are some of the hidden tricks you may

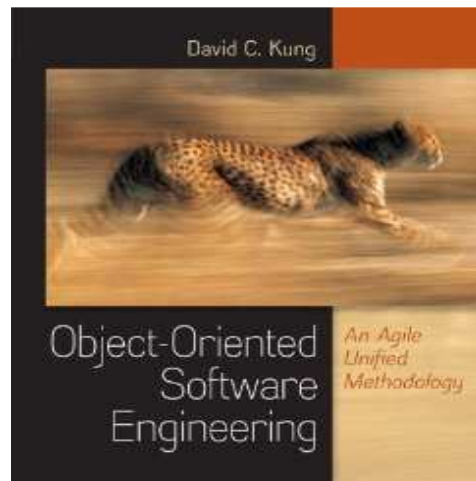


Figure 1:

try. If nothing works for you then please contact another classmate or the TA to get the files from them. I will not be able to help beyond the following tricks.

1. First, if you ftp from outside of UTA campus, then you need to install and run VPN. VPN and instructions to install and run it are available at UTA OIT's website.
2. If you use Microsoft IE to ftp, then you need to set the browser as follows. Click Tools, then select Internet Options, click Advanced tab, scroll down the Settings list till you see "Use passive FTP," uncheck this option, click OK etc. to go back to normal state. In the Address field, type ftp://marge.uta.edu to connect to the ftp site. Enter the login and password. You may need to click File and select "Login As" to login.
3. You may use the command prompt ftp command. First go to the local directory where you want to place the downloaded files. Then type "ftp -i marge.uta.edu" at the command prompt and enter login and password when asked. After login, type "bin" for binary transfer but you should not need to do this but just play safe. Then type "mget *" for multiple get everything.

6 Tentative Schedule

See Figure 2

7 Team Member Evaluation Form

Figure 3 shows a team member evaluation form, which must be submitted by every team member after each increment. 1% for each evaluation form submitted at end of each increment. This is shown on the PEV column of the scores messages sent during the semester. The form is also available from the course ftp site. Use this form to appraise those team members that you feel their

Date	Class Activity	Assignment	What Is Due
8/22	Syllabus	Background survey	Background survey
8/27	Introduction to team project	Teams formed	
8/29	Review of agile unified methodology	Requirements	
9/3	Review of agile unified methodology		
9/5	Review of agile unified methodology	Use cases, traceability, and allocation to 3 iterations	Requirements
9/10 ¹	Introduction to software design patterns	Increment 1	
9/12	Techniques used by design patterns		
9/17	Process for applying patterns		
9/19	Reserved		
9/24	bridge, command, proxy		
9/26	template method, factory method		
10/1	Increment 1 team presentations	Increment 2	Increment 1 (email ppt to TA by 10 am)
10/3	Increment 1 team presentations	HW1	
10/8	proxy, prototype		
10/10	composite		
10/15	strategy, iterator		
10/17	visitor, memento		
10/22	Reserved		
10/24	abstract factory, builder	HW2	HW1 (email to TA by deadline)
10/29	Increment 2 team presentations	Increment 3	Increment 2 (email ppt to TA by 10 am)
10/31	Increment 2 team presentations		due 11/27 10 AM all teams, email ppt to TA
11/5	reserve		
11/7	reserve		
11/12	flyweight, state		
11/14	observer, adapter, chain of responsibility		
11/19	decorator, interpreter, facade, mediator,		
11/21	Review for final examination		HW2 (email to TA by deadline)
11/26	Increment 3 team presentations		Increment 3 (email ppt to TA by 10 am)
11/28	Thanksgiving Holiday		
12/3 ²	Increment 3 team presentations		
12/12	Thursday 2 - 4:30 p.m. Final exam		

1. Census date

2. Last day of classes

Figure 2: Tentative schedule

contributions should be credited and provide the instructor information about team members who need improvement. I will keep this confidential.

8 Workload

- One semester team project (40%):

The project requires the teams to apply a total of at least 8 distinct patterns.

Each student is required to present part of the project at least once during the semester. Students' performance in the team is taken into consideration. Each negative point in the peer evaluation deducts one point from your increment score. So if one gets -2 for five categories from one peer, then this will reduce the score by 10 points.

- Two individual homework assignments (HW1=10%, HW2=20%)
- One final exam 20%
- Pop quiz 10%. There will be an unknown number of pop quiz, which can take place any time during the class and on any class day. If you cannot come to class on time, you need to inform the instructor beforehand; otherwise, no make up quiz will be given unless in medical emergency, which requires a doctor's letter.

9 Grade Distribution

Total Score	≥ 85	≥ 70	≥ 60	≥ 50	< 50
Grade	A	B	C	D	F

The grades are computed by a program according to your scores. If you get 84.95 then you will get a "B", not an "A" even if the score is so close to 85.

10 General Grading Criteria

10.1 Team Project

Team projects will be evaluated according to various aspects of the project including applications of patterns. Details will be provided later. See Figure 4 for a sample grid used in a previous semester. Note: the percentage numbers may change in this semester, depending on the nature of the projects.

10.2 Individual Assignments

- 1) Correctness – the solution adequately solves the given problem
- 2) Soundness – the solution is well justified

Project Team Member Evaluation Form

Increment# ____ Course#_____ Fall / Spring Year_____

Please submit hardcopy or fax to David Kung 817-272-3784, EMAIL NOT ACCEPTABLE

Most team members perform well in a project team. However some members perform extremely well and some very poorly. It is constructive to encourage the outstanding members and inform those who need improvements. This form allows you to convey such information to your team members whenever you deem there is such a need.

Please give an integer rating of -2 (poor), -1 (below average), 0 (average), +1 (above average), or +2 (excellent) for some of the aspects of the members you want to convey your assessment. Your evaluation might be reproduced (to hide your identity) and presented to the relevant members.

However, the identity of the evaluator will be kept absolutely confidential in all cases.

Member name					
Group meeting attendance					
Group discussion					
Individual assignment					
Technical contribution					
Organizational contribution					
Overall performance					

Comments: (use additional sheets if needed)

Name: _____ Signature: _____ Date: _____

Figure 3:

Team Number																			
Team Members																			
Item Description	%	High quality work exceed expectation			High quality work			Good work, main components present			Miss major components or work is poor			Work quality is very poor			Work is not acceptable at all		
		100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	15	0
Requirements	5																		
Abstract & High-Level Use Cases	5																		
Use Case Diagram	5																		
Expanded Use Cases	5																		
Domain Modeling	10																		
Brainstorming & classification																			
Domain model class diagram																			
Object Interaction Modeling																			
Scenarios and scenario tables	5																		
Sequence diagrams	10																		
Design Class Diagram	10																		
Correct Applications & Indication of Patterns	30																		
Software demo	15																		
Total	100																		

Figure 4: Project evaluation

- 3) Efficiency – the solution is among the simplest ones possible
- 4) Organization – the presentation of the solution is easy to understand and logically organized
- 5) Clarity – the solution is clearly stated and tables and figures are professionally produced
- 6) Grammar, spelling, and writing – correct grammar and spelling, and legible writing

1) – 2) are worth about 60% of the weight and 3) - 6) about 40%.

11 Assignment Rules

1. Late assignments will be accepted before the explanation of the homework assignment in class. Late assignment are subjected to 10% deduction and additional 10% deduction for every 24 hours passing the deadline. After the explanation, no assignment will be accepted. This rule will be consistently applied to every student in all cases, regardless whatever good reason you may have.
2. You are encouraged to discuss homework with your classmates but not allowed to copy the solutions from or share the solutions with anybody. If you violate this rule, then you will receive no credit for that assignment unless you can prove that you are not involved.
3. The GTA will do most of the grading. If you do not agree with the result, contact the GTA first. Please contact the instructor if you cannot reach a consensus. This would help the GTA improve her/his grading skill and avoid inconsistency due to improper interference of the instructor.
4. To be fair to the other students, no special assignment will be provided for any student to improve her/his grade.

12 Class Email Alias

I will broadcast important messages, homework assignments, project descriptions etc. to students of the class. The messages will be sent to a contact list which should include your UTA email address. You should receive an email before the class. If not please contact me immediately so that I can add you to the list. It is your responsibility to contact me when your university email account has changed.

13 Your Standing and Class Statistics

After each assignment or test has been graded, I will distribute to each of you your scores and grade up to that assignment or test. You will also receive class performance statistics. Timely distribution of such information requires that the TA email me the scores in time. Please help me to remind the TA to email me such information. The email message will contain a heading like the following and statistics information, explained as follows.

A1,A2,A3: individual homework assignments 1, 2, 3

I1,I2,I3: increments 1,2,3

PEV: peer evaluation form submission for 1,2,3

Q1,Q2,Q3: quiz 1,2,3

T or FE: final exam

PlannedWT: planned weight in percentage

ActualWT: actual weight

Email	Lastname	A1	A2	I1	I2	I3	PEV	Q1	Q2	Q3	Q4	Q5	FE	
PlannedWT	%	15	15	14	14	14	3	2	2	2	2	2	15	100
ActualWT	%	15	15	0	14	28	3	2	2	2	2	2	15	100
abc1234	abcd_efghij_kl	95	90	29	69	85	100	0	50	0	100	100	75	80 B

Grade distribution: 12 A; 12 B; 0 C; 1 D; 0 F.

Max = 90; Min = 59; Med = 83; Avg = 82.96.

Columnwise statistics:

=====	A1	A2	I1	I2	I3	PEV	Q1	Q2	Q3	Q4	Q5	FE
Average:	87	87	39	72	93	100	55	41	24	100	100	73
Minimum:	0	0	27	61	85	100	0	0	0	100	100	55
Maximum:	95	95	56	81	97	100	100	75	66	100	100	90
Medium::	95	90	35	69	94	100	50	50	33	100	100	70

14 SE Code of Ethics and Professional Practice

ACM/IEEE Software Engineering Code of Ethics and Professional Practice

For the full version, see <http://www.acm.org/serving/se/code.htm#full>.

Software engineers shall commit themselves to making the analysis, specification, design, development, testing and maintenance of software a beneficial and respected profession. In accordance with their commitment to the health, safety and welfare of the public, software engineers shall adhere to the following Eight Principles:

1. PUBLIC - Software engineers shall act consistently with the public interest.
2. CLIENT AND EMPLOYER - Software engineers shall act in a manner that is in the best interests of their client and employer consistent with the public interest.
3. PRODUCT - Software engineers shall ensure that their products and related modifications meet the highest professional standards possible.
4. JUDGMENT - Software engineers shall maintain integrity and independence in their professional judgment.
5. MANAGEMENT - Software engineering managers and leaders shall subscribe to and promote an ethical approach to the management of software development and maintenance.
6. PROFESSION - Software engineers shall advance the integrity and reputation of the profession consistent with the public interest.
7. COLLEAGUES - Software engineers shall be fair to and supportive of their colleagues.
8. SELF - Software engineers shall participate in lifelong learning regarding the practice of their profession and shall promote an ethical approach to the practice of the profession.

15 Request for Early Leave

Requests for permission to go home before the final exam date will never be granted except for medical reasons and with a proof from a doctor. Students who do not participate in the final exam will not receive the scores for the final exam except that the final exam is waived

16 Library Information

(817) 272-3000, ext. 4938; email lsmith@library.uta.edu
<http://www.uta.edu/library/research/rt-cse.html> for CSE research information.

Please fill the course info, read, sign and return this statement to the instructor. Thanks.

**Statement of Ethics
Student Confirmation**
(CSE_____, Spring [], Summer [], Fall [], Year of _____)

The following is an excerpt from the College of Engineering's statement on Ethics, Professionalism, and Conduct of Engineering Students. The notes are modifications appropriate for Computer Science and Engineering courses. Read the statement carefully, sign it, and return it to your instructor. A copy of the original policy is available for examination in the Computer Science and Engineering office. Additional copies of this statement can be obtained from your instructor or the Computer Science and Engineering office.

**Statement on Ethics, Professionalism, and Conduct of Engineering Students
College of Engineering, The University of Texas at Arlington**

The College cannot and will not tolerate any form of academic dishonesty by its students. This includes, but is not limited to 1) cheating on examination, 2) plagiarism, or 3) collusion.

Definitions:

A. Cheating on an examination includes:

1. Copying from another's paper, any means of communication with another during an examination, giving aid to or receiving aid from another during an examination;
2. Using any material during an examination that is unauthorized by the proctor;
3. Taking or attempting to take an examination for another student or allowing another student to take or attempt to take an examination for oneself.
4. Using, obtaining, or attempting to obtain by any means the whole or any part of an unadministered examination.

B. Plagiarism is the unacknowledged incorporation of another's work into work which the student offers for credit.

C. Collusion is the unauthorized collaboration of another in preparing work that a student offers for credit.

D. Other types of academic dishonesty include using other student's printouts from the ACS labs or students' disk, etc.

Notes:

1. The use of the source code of another person's program, even temporarily, is considered plagiarism.
2. Allowing another person to use your source code, even temporarily, is considered collusion.
3. In this class, the specific exceptions given below are not considered scholastically dishonest acts:
 - A. Discussion of the algorithm and general programming techniques used to solve a problem
 - B. Giving and receiving aid in debugging
 - C. Discussion and comparison of program output
4. The penalty assessed for cheating on a given assignment will be twice the weight of the assignment and will include notification of the proper authorities as stipulated in the UTA Handbook of Operating Procedures and on the web at <http://www2.uta.edu/discipline>
5. You may be entitled to know what information UT Arlington (UTA) collects concerning you. You may review and have UTA correct this information according to procedures set forth in UT System BPM #32. The law is found in sections 552.021, 552.023 and 559.004 of the Texas Government Code.

I have read and I understand the above statement.

Student's signature:_____

Student's name (printed):_____

Student's ID number:_____