

CSE 4361 SOFTWARE DESIGN PATTERNS

FALL 2012

1 General

Lectures: TTh 4:00pm-5:20pm, ERB 130
Instructor: David C. Kung, ERB 532, 817-272-3627
Email: kung@uta.edu, 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: 3pm-4pm 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

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

4 Reference Books and Articles

Craig Larman, "Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development" (3rd Edition), Prentice Hall, 2005.

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 given at the beginning of this syllabus.

You should be able to ftp within the UTA campus but ftp from outside of UTA campus needs to use VPN as described below. The following are some of the hidden tricks you may try. If nothing works for you then please contact TA or a classmate to copy the files from them. I will not be able to help the following is what I know and works for me and other students.

(1) If you ftp from outside of UTA campus, you need to install VPN. Below is the link on how to install and configure a vpn client on personal computers:

www.uta.edu/oit/cs/software/vpn/Cisco-AnyConnect-SSL-Client.php

After you install and configure VPN, you can ftp as described below.

(2) If you use Microsoft IE to ftp, then you need to set the browser as follows. Click Tools, select Internet Options, click Advanced tab, scroll down the Settings list til you see "Use passive FTP", uncheck this option, click OK etc. to go back to normal state. In the Address field, type in the address of the ftp page and enter the login and password. You may need to click File and select Login As to login.

(3) You can try the command prompt ftp command. First make sure that ftp.exe is on your search path. You can type the following command in the `C : \` directory to find out where is the ftp.exe file, note "`C : \ >`" is the command prompt string:

```
C : \ > dir /s /b ftp.*
```

To ftp, 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. Use "cd" command to change to the course directory. That is, first type "cd home", then type "cd course", and then "cd *cseNNNN*" where NNNN is the course number. Then type "mget *" for multiple get everything. To see the list of files type "ls". To quit ftp, type "quit" or "bye".

6 Tentative Schedule

The course will have three increments, starting in the beginning of September. The increments are about one month apart. Details will be provided later.

7 Workload

- One semester team project (50%):

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 deducts one point from your increment score. So if you get -2 for five categories from one peer, then this reduces your score by 10 points.

- Two individual homework assignments 10% each
- 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.

8 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.

9 General Grading Criteria

9.1 Team Project

Team projects will be evaluated according to various aspects of the project including applications of patterns. Details will be provided later.

9.2 Individual Assignments

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

10 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.

11 Team Member Evaluation Form

1% for each evaluation form submitted at end of each increment. This is shown on the PEV column of the scores message sent during the semester.

Enclosed at the end of this syllabus is a team member evaluation form which must be submitted by every team member after each increment. The form is also available from the course ftp site. Use this form to appraise those team members that you feel their contributions should be credited and provide the instructor information about team members who need improvement. I will keep this confidential.

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.

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: _____

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:_____