

# Games in the Classroom

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Computer and Information Sciences

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# Why Use Games?

- Pedagogical benefits?
  - Who knows?
- My reasons
  - Have some fun
  - Allow students to get to know each other
  - Spice up Friday classes a little
  - "Active Learning"

# Basic Approach

- Last half of most Friday classes
- Divide class into groups of 4 to 6 people
  - Divide groups differently each time
  - Group must sit together
  - Group must consult and agree on responses
- Students keep track of scores

# Word Search

- Good for basic knowledge
  - Recognition
  - Identification
  - Listing?
  - Matching?
- Example: programming language keywords

## Java Keywords and Reserved Words

P T Y O S N X S D Q B F L V E S C Q V K P B H Q E C A C Z X E V Z V G F Q K W L  
 C Z M U Q X V R L Z Z I Y E N B S Y J I S V Z E J L B C F O A B O W M Z H S I L  
 Y G K F K C X K S R G I F L Y J E L I H W C Q O S E U E F I Z A X C K R J L J L  
 B P L J I N N R C Z P J R V Y V P R M X W A Q W L L W O F X W E G E N F D T W A  
 K X G V L I I T G B D J C W I B C U P G B S V Z Z K A F X B U N E Y V U H L L N  
 N P D I O Y B L D T P R O T E C T E D S H E P M U W H F J N U K C G M C T G R I  
 T S C M C W W W K W F A I D D O B I L O C Z H F M I L P Q L E J Y E T P J Q F F  
 K K R J B Q X G U A P D L E H O X O C M G I C G H W Q X L H X D H A L K L G S E  
 N T Z J X I B W Y Y H Y C W M M G X I N U V Z S Z Y E J P I T W C A Y T B X O T  
 V S R K N F H W T R W A X B J I O M R H D F U G S F C Y M H E S U V C O Y W N Q  
 C S S T D H E J I R F S R S Z S U M I I S N Q J W U O H O Y N V M A P D M Z Y I  
 O L D R S K L A U R Q T Y V A E U Q O O M W E A L K I F M B D N R Z P B J X Q D  
 X W X X C N R M E M C H Q J L O Q I N S T A N C E O F S W O S T J S Z H J E O I  
 G B N Z K I S T N E M E L P M I H B A S W X D J X L Z H O E S C I L B U P V T C  
 Z I L U I S N N Q X E V I T A N K I J J V G G C N O W W P B A G R V J I Q D S X  
 M P Z X K I C H O Q V O M X P N W S V S K X W K F E O D A D M H A P X T J I X H  
 A X D O P I O A P I Z W Z R L R G W K X P S V B M W W A R P Y Q Z R U T A O L F  
 E X G J Z F N B X H N H O F O G N D L D E C J R T S J C R G O T O C D D A F J X  
 W Y J Y P F S M F L V H G D W F N B U U V L G D K P O T E N C O E H F N A N D  
 S A N P L D T D R I C C H T L E B K Z H D H S G G N F G P P H S K A O H P A O S  
 Q I T F F A Y G R D Z K X S K O D Q D C C V F E T W T S U O I W P R T M M E F R  
 R N R Y U D L K M N V M H R B E V Q G T F X X I C M Q S S L L C W E F K F L X U  
 H X O I T E F X F I D R Q X A E T A V I R P N L Q Z N T E N V D N T Z T R O H I  
 F P H Y N Z O J D P C E Z Q F W P F R W A U D N E W L A F O Y R T A M V Q O F F  
 K Z S I M I Y A M C F S S R F V Q J O S E Z T M X W O T J G X V H C Y K G B T I  
 B H B S H N X O V M I E K E K Q U J Y I M P O R T G X I M U H M R J B Y I E E N  
 D G R R A O D Y U B J W U V T R O E Q M A W K L X V I C I L U E K H B N I G F A  
 H W Z O J R R F I J B R M A Q V B J Y Z G I U T Z R Y Q I X T T J R N E J A X L  
 W B J H P H B Y V E T X D J O J D O U B L E C S Y S H P Z A H E R O P Y K H L  
 H T E K H C E X I P Z V C M T D A R C D V Q N C T M S F B G I A R U G I P C O Y  
 H Y G L X N P J S B E W G M C A D L P M M T H R O W S X D X K N E O N T P A N G  
 Z Z U R K Y A H D G Y J Z J S P Q I W W D E H B B P N T T K L R X E W G L P M G  
 P H D S O S K V V E F O R F Q A F N S X Q Z Y N V N K U I R V R P D B K N F R Q  
 K L Y X M R Q Z C C E M Z N O A J W T B I W R S P W M V N B E E V B D M M O W G  
 J I J H X Z W P B J I B C L K E A K R D O E V X C A V V I T S V C S E T A R L E  
 E M W J E R S E K V Y E W Z C A N M I G O D Z R P C K N U C T L U A F E D P M Z  
 V B U K T W T U B T H K X A H L D A C D Q O F L U O Q X R L R K Q L U L W M R K V  
 Y W F F Y R X R K L J N H Z Q I A B T Q V D K I J Z N A E L I T A L O V J Y K T  
 A G Y C H A X L A D Z W G D I O V P F X C J I Z O H S G P W T H I S X E T Y B C  
 S U Z N T M L K J B I C Z K T P Y T P S G E L U S S V F I M Q S H P F U Q G C P

ABSTRACT	CONTINUE	FLOAT	LONG	SHORT	TRUE
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# Word Search

- After time limit
  - Display key
  - Group with most words wins

## Java Keywords and Reserved Words

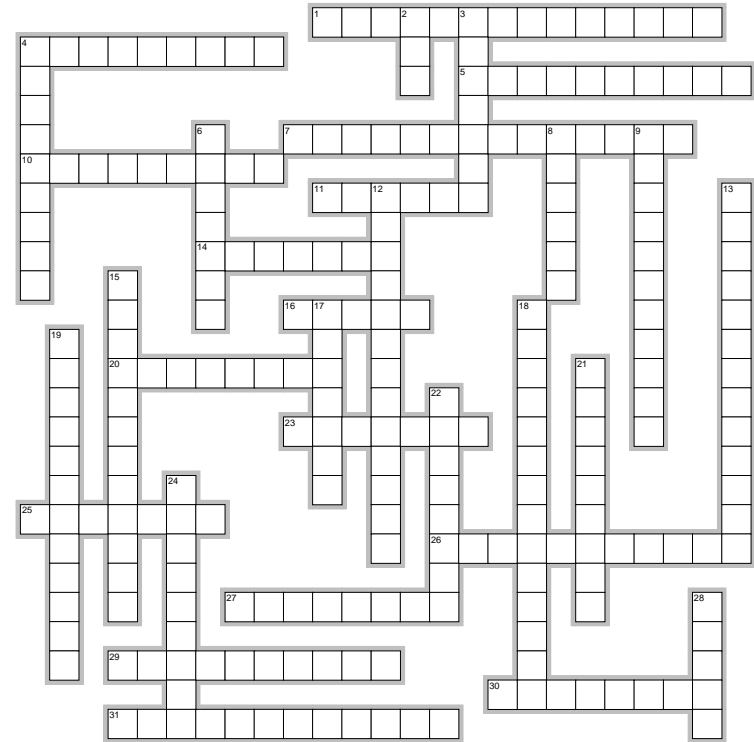
PTYOSNXSDQBFLVESCSQVKPBBHOECACCFZXEVEVZVGFQKWL  
 CZMUQXVRLZZZIFYENBSYJISVZESJLBCFEQABOWMZRHSIL  
 YGKFKCXKRSRGIFLYJELIHWCAQWLLWOFXWEGENFRDFTWLA  
 BPLJINNRCZPJRVYVPRMXWAQWLLWOFXWEGENFRDFTWLA  
 KXGVLIIITGBDDJCWIBBCUPGBSVVZZKAFXBXUNEYVUHLN  
 NPDI OYBLDT**PROTECTED**ESH**EMUWHFFJNUKCGMCTGRIF**  
 TSCMCWVWKWF**AIDDOBILOCZHFMLLPOL**LEJYET**PJQFF**  
 KKRJBQXGUAPDLEHOXOCMGICGHWQXLHXDHAKLGLGSE  
 NTZJX**IBWYYHYCWMMGXINUUVZSSZY**EJPI**TW**CA**Y**T**XBOT  
 VSRK**N**FHWTRW**AXB**JIOMRHDFUGSFCYMH**ESUV**C**OYWNO**  
 CSS**T**DHEJ**IR**F**SRSZSUMIISNOJWUOH**OY**NVMA**PD**MZYI**  
 OLDRSKLAUR**Q**TYVAEU**OO**OM**WEAL**K**IF**MB**DN**R**Z**SPBJXQD  
 XWXXCN**RE**MC**HOJLQO**I**N**STANCE**OF**S**W**OST**Z**SHJEOI  
 GBNZKI**STNEMELPMI**H**BAS**WXD**JXLZ**HO**ES**CI**LB**UP**V**TC  
 ZILUIS**N**NQX**EVITAN**KI**J**JVGGC**N**OW**WP**B**A**GRV**J**IQDSX  
 MPZXK**I**CHOQVOMXPNWSVSKXWKF**EO**AD**M**HAPXT**J**I**X**H  
 AXDQ**PI**O**API**ZWZRLRGW**KX**PSVBM**W**ODAR**PS**V**BM**Q**Z**RU**T**A**OL**F  
 EXGJZ**F**N**B**XHN**H**O**F**O**G**ND**L**DE**C**JRT**S**J**CR**G**O**T**O**CDDA**F**JX  
 WYJY**P**F**S**MFLVHGDFW**FN**BUUV**L**GDK**P**OT**E**NC**O**EH**F**AN**N**ND  
 SANPLD**T**DRIC**CH**T**L**EB**K**Z**H**DH**S**GG**N**F**G**PP**H**SK**A**OH**P**A**O**S  
 QI**T**FFAYGRDZKXSKODQD**C**CV**F**ET**W**T**S**U**O**I**W**PR**T**MM**E**FR  
 RN**R**YU**D**LKMNV**M**HR**B**EV**Q**GT**F**XX**I**CMQ**SS**L**L**CC**W**E**F**K**F**LXU  
 HXOIT**E**F**X**FD**DR**O**X**A**ET**AV**IR**PN**L**Q**Z**NT**E**NV**D**NT**Z**T**R**O**H**I  
 FP**H**YN**Z**O**J**D**P**CEZ**Q**F**P**FR**W**AU**D**NE**W**LA**F**O**Y**RT**A**M**V**Q**O**FF  
 KZ**S**IM**I**Y**A**MC**F**SS**R**FR**V**Q**J**O**S**E**Z**T**M**X**W**O**T**J**G**X**V**H**C**Y**K**G**B**T**I**  
 BHBSH**N**XOV**M**IE**K**E**K**O**J**Y**I**M**P**O**R**T**G**X**I**M**U**H**M**K**J**B**I**E**E**N  
 DGRRA**O**DYUB**J**W**U**V**T**RO**E**Q**M**A**W**K**L**X**V**I**C**I**L**U**E**K**H**B**N**I**G**F**A**  
 HWZO**J**R**R**FI**J**B**R**MA**Q**V**B**J**Y**Z**G**I**U**T**Z**R**Y**O**I**X**T**T**J**R**N**E**J**A**X**L  
 HBJHP**C**HBY**V**E**T**X**D**J**O**J**D**O**U**B**L**E**C**SY**S**H**P**P**Z**A**H**E**R**O**P**Y**K**H**L**  
 HTEKH**C**EX**I**PZ**V**CM**T**D**A**R**C**D**V**Q**N**CT**M**S**F**B**G**I**A**R**U**G**I**P**C**O**Y**  
 HYG**L**X**N**P**J**S**B**E**W**G**M**C**A**D**L**P**M**M**T**H**R**O**W**S**X**D**X**K**N**E**O**N**T**P**A**NG  
 ZZUR**K**Y**A**H**D**G**Y**J**Z**J**S**P**Q**I**W**W**D**E**H**B**B**P**N**T**T**K**L**R**X**E**W**G**L**P**M**G  
 PHDS**O**S**K**V**V**E**F**O**R**F**O**A**F**N**S**X**Q**Z**Y**Y**N**V**N**K**U**I**R**V**R**P**E**D**B**K**N**F**R**Q  
 KLYX**M**R**Q**Z**C**C**E**M**Z**N**O**A**J**W**T**B**I**W**R**S**P**W**M**V**N**B**E**E**V**B**D**M**M**O**W**G  
 JIJH**X**Z**W**P**B**J**I**B**C**L**K**E**A**K**R**D**O**E**V**X**C**A**V**V**I**T**S**V**C**S**E**T**A**R**L**E  
 EMW**J**E**R**S**E**K**V**Y**E**W**Z**C**A**N**M**I**G**O**D**Z**R**P**C**K**N**U**C**T**L**U**A**F**E**D**P**M**Z**  
 VBUK**T**W**T**U**B**T**H**K**X**A**H**L**D**A**C**D**Q**O**F**L**U**O**Q**X**R**L**L**Q**L**U**L**W**M**R**K**V  
 YW**F**F**Y**R**X**R**K**L**J**N**H**Z**Q**I**A**B**T**Q**V**D**K**I**J**Z**N**A**E**L**I**T**A**L**O**V**J**Y**K**T  
 AGY**C**H**A**X**L**A**D**Z**W**G**D**I**O**V**P**F**X**C**J**I**Z**O**H**S**G**P**W**T**H**I**S**X**E**T**Y**B**C**  
 SUZ**N**T**M**L**K**J**B**I**C**Z**K**T**P**Y**T**P**S**G**E**L**U**S**S**V**F**I**M**Q**S**H**P**F**U**Q**G**C**P****

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# Crossword Puzzles

- More than just recognition
  - Comprehension
  - Application
  - Analysis
  - Synthesis
  - Evaluation

## Introduction to Software Design



Created with EclipseCrossword — [www.eclipsecrossword.com](http://www.eclipsecrossword.com)

### Across

- (2 words) Shows relationships between problems and subproblems
- Repeating a set of instructions
- (2 words) Development approach that focuses on data and operations
- (2 words) Large boring example in chapter 1
- Lifecycle phase in which methods and classes are defined
- Interaction between objects
- Java testing framework
- Computer programs
- Creates Java documentation
- Lifecycle phase in which classes and methods are verified
- A model of something
- Converts an object to a string
- Unified phase in which the new system is started up
- Lifecycle phase in which overall architecture is determined
- Must be true before using a method

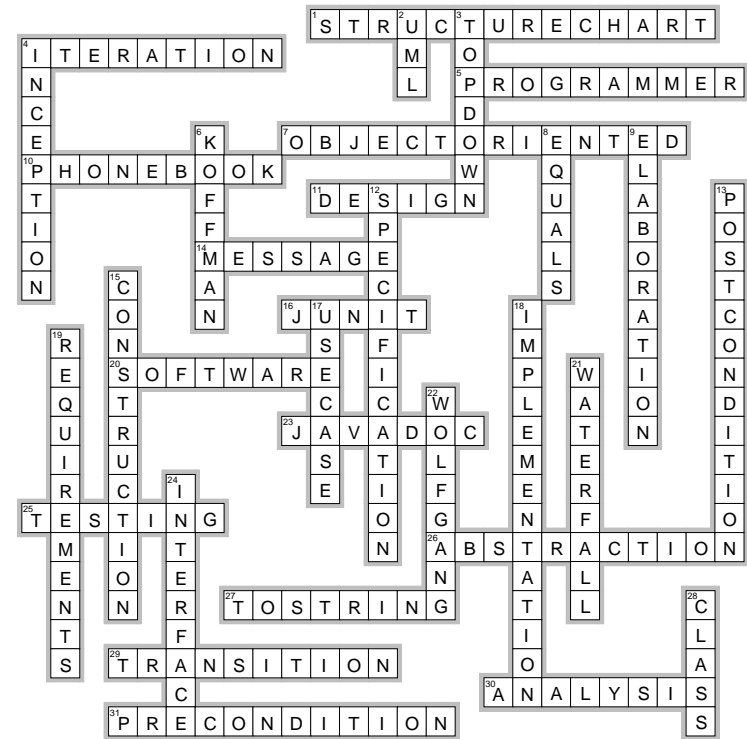
### Down

- Unified Modeling Language
- (2 words) Development approach that divides a problem into subproblems
- Unified phase in which user's needs are collected
- Author's last name
- Tells if two strings have the same contents
- Unified phase in which requirements and design are elaborated
- Document that lists stipulations and constraints
- Will be true after method finishes
- Unified phase in which most coding happens
- (2 words) A "story" about how a user uses software
- Lifecycle phase in which classes and methods are coded
- Lifecycle phase in which users' needs are collected
- Old lifecycle model
- Author's last name
- Specification of an abstract data type
- Template for creating objects

# Crossword Puzzles

- After time limit
  - Display key
  - Group with most answers wins

## Introduction to Software Design



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### Across

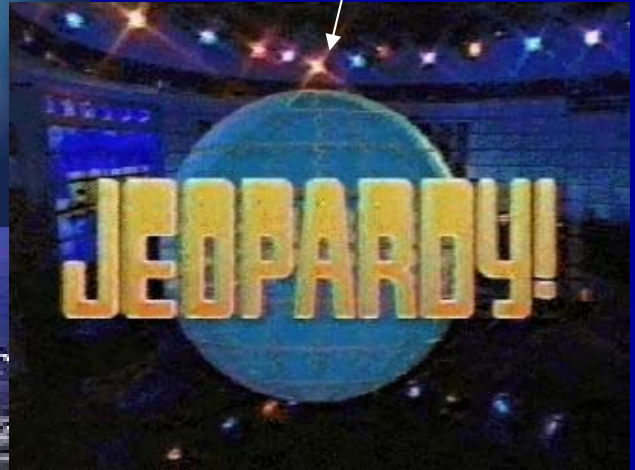
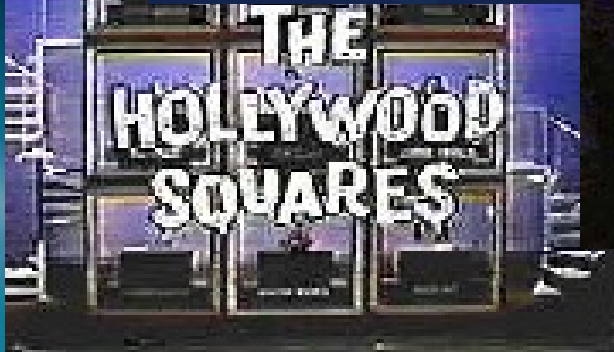
1. (2 words) Shows relationships between problems and subproblems
4. Repeating a set of instructions
5. Writes code
7. (2 words) Development approach that focuses on data and operations
10. (2 words) Large boring example in chapter 1
11. Lifecycle phase in which methods and classes are defined
14. Interaction between objects
16. Java testing framework
20. Computer programs
23. Creates Java documentation
25. Lifecycle phase in which classes and methods are verified
26. A model of something
27. Converts an object to a string
29. Unified phase in which the new system is started up
30. Lifecycle phase in which overall architecture is determined
31. Must be true before using a method

### Down

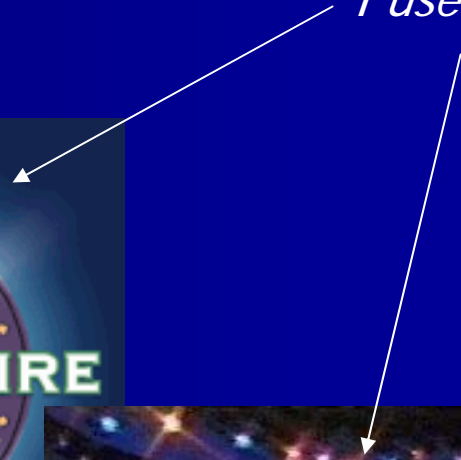
2. Unified Modeling Language
3. (2 words) Development approach that divides a problem into subproblems
4. Unified phase in which user's needs are collected
6. Author's last name
8. Tells if two strings have the same contents
9. Unified phase in which requirements and design are elaborated
12. Document that lists stipulations and constraints
13. Will be true after method finishes
15. Unified phase in which most coding happens
17. (2 words) A "story" about how a user uses software
18. Lifecycle phase in which classes and methods are coded
19. Lifecycle phase in which users' needs are collected
21. Old lifecycle model
22. Author's last name
24. Specification of an abstract data type
28. Template for creating objects

# Game Shows

- Most popular activity



*I used these*



# Jeopardy!

- Modified rules
  - Don't have to answer in form of question
  - Control passes after three questions (at most)
  - Can't lose money

Queue Interface	Queue Implementations	Recursion	Searching	Java's Quirks	Potpourri
<u>\$100</u>	<u>\$100</u>	<u>\$100</u>	<u>\$100</u>	<u>\$100</u>	<u>\$100</u>
<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>	<u>\$200</u>
<u>\$300</u>	<u>\$300</u>	<u>\$300</u>	<u>\$300</u>	<u>\$300</u>	<u>\$300</u>
<u>\$400</u>	<u>\$400</u>	<u>\$400</u>	<u>\$400</u>	<u>\$400</u>	<u>\$400</u>
<u>\$500</u>	<u>\$500</u>	<u>\$500</u>	<u>\$500</u>	<u>\$500</u>	<u>\$500</u>

What is wrong with this code segment?

```
if ("apple" < "banana") {  
    System.out.println("Less");  
}
```

\$200

★ ★ Final Jeopardy ★ ★  
*Category*

★ ★ Daily Double!! ★ ★

# Millionaire

- Each group goes until
  - Wrong, or
  - Quit & take winnings
- Highest value wins
- One lifeline: 50-50

The screenshot displays the jQuizShow application interface. The main window has a menu bar with 'File', 'View', 'Options', and 'Help'. It is divided into two panes: 'Score Screen' and 'Game Screen'.

**Score Screen:** A table showing prize amounts for each question number. The current question is 2, with a prize of \$200.

Question Number	Prize Amount
15	\$ 1 MILLION
14	\$ 500,000
13	\$ 250,000
12	\$ 125,000
11	\$ 64,000
10	\$ 32,000
9	\$ 16,000
8	\$ 8,000
7	\$ 4,000
6	\$ 2,000
5	\$ 1,000
4	\$ 500
3	\$ 300
2	\$ 200
1	\$ 100

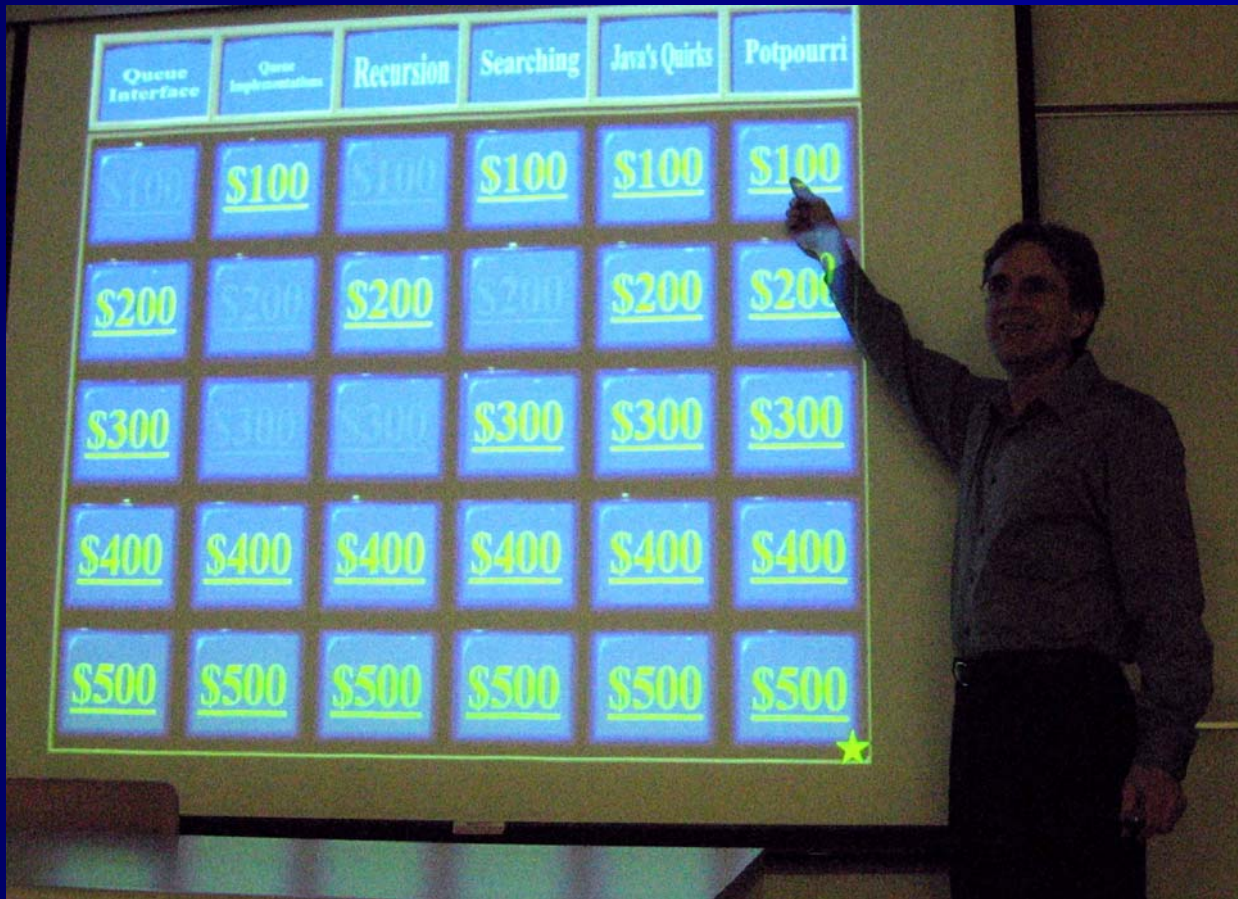
**Game Screen:** Shows the current question and options. The question is: "If x is an int variable, what does x++ do?". The options are:

- A: Stops the program
- B: Increases the value of x by 1
- C: Returns the value of x
- D: Displays the value of x

Additional information on the Game Screen includes: "Trying for: \$ 200", a timer showing ":57", a progress indicator "50/50", and icons for lifelines (50-50, Ask the Audience, and Help).

Version 1.0

# It's fun to play host!



# Students' Motivation

- Students seem to have a lot of fun
- Games & groups combine cooperation and competition
- *Valuable prizes!!*



# Tip #1

- Sound effects make a big difference
- Can be cheesy!



Clapping



Whistle



Longer fanfare



Wait...



Short fanfare

# Tip #2

- "Pointer mouse"
  - Lets you walk around
  - \$50 at Campus Computer Store



# Free Game Resources

- Word search (requires Perl <http://www.perl.org/get.html>)
  - <http://decafbad.net/projects/wordsearch/>
- Crossword (Windows)
  - <http://www.greenclipssoftware.com/eclipsecrossword/>
- Jeopardy (PowerPoint)
  - <http://soe.cahs.colostate.edu/faculty/johnson/games/Blank%20Single%20Jeopardy.ppt>
- Millionaire (requires Java <http://java.sun.com/j2se/1.5.0/download.jsp>)
  - <http://sourceforge.net/projects/quizshow>
- Other games (PowerPoint)
  - <http://soe.cahs.colostate.edu/faculty/johnson/games/>
- Sounds
  - <http://simplythebest.net/sounds/index.html>