Computer Science I

CMPE/CSCI 1370 - 01

Design recipe

0. Read problem statement, write wishlist
1. Data definitions
2. Signature, purpose, stub
3. Examples
4. Template
5. Function body
6. Test and debug

Today

Time	Topic
9:30 - 9:45	Project review
9:45 - 10:15	Composing templates
10:15 - 10:30	Simplifying conds

Composing functions

problem involves multiple subtasks

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Composing templates

function accepts multiple parameters

Composing templates

- Check if available for office hours based on day of the week and hour of the day
- Mixing primary colors
- Determine whether an attempted charge on a debit card is successful based on whether the account is suspended or not, and account balance is sufficient for purchase price
- Calculate insurance premium from gender, age, and number of tickets on record
- Diagnose a patient based on temperature, and whether or not he has either (or more) of: a stuffy nose, rashes, pain in the ear

Composing templates

function accepts multiple parameters

- Data definitions + single-parameter templates
- Combine templates
- Simplify cond expression

Do

- Check if available for office hours based on day of the week and hour of the day
- Final grade

Show

- Determine whether an attempted charge on a debit card is successful based on whether the account is suspended or not, and account balance is sufficient for purchase price

You

- Mixing primary colors
- Calculate insurance premium from gender, age, and number of tickets on record

Composing templates

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Simplifying cond expressions

- cond where all answers are the same: eliminate the cond
- multiple conditions need to be true to produce an answer: `and`
- multiple clauses have the same answer: `or`

Compound boolean expressions

- `and`
- `or`
- `not`

Boolean operators

a	b	(and a b)	(or a b)	(not a)
T	T			
T	F			
F	T			
F	F			

```
(and (> 7 4) (or (not (> 7 8)) (= 7 5)))
```

A. `true`

B. `false`

C. Error

D. It depends

E. I don't know

```
diagnose
```

Attendance!

http://bit.ly/1370-1rollcall