Lecture 2

OOP – Spring 2022 - BSDS

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Some Important Points

- **Try to use minimum tools**
- **Improve coding style:**
  - **Variable Names**
  - **Function Names**
  - **Function Decomposition**
  - **Constants**
  - **Comments**

Integer Division

- **Integer Division vs Complete Division**
- **Related Operators**
- **Examples:**
  - **Divide 50 marks in 8 teachers equally and return remaining markers to store**
  - **The teacher has to divide class into 4 groups such that first, fifth, ninth,… student be in group 1, second, sixth, tenth in group 2 and so on**

Decision Making

- **To put some intelligence in computers to take decisions**
- **Require comparison using relational operators**
- **Composite conditions required logical operators**
- **If Condition**
- **If – Else**
- **If – Else – If**
- **Nested If**

Example 1

Given an integer n, return True if it is within 10 of 100 or 200.

near_hundred(93) → True
near_hundred(90) → True
near_hundred(89) → False

def near_hundred(n)

Example 2

Given 2 integer values, return True if one is negative and one is positive. Except if the parameter "negative" is True, then return True only if both are negative.

pos_neg(1, -1, False) → True

pos_neg(-1, 1, False) → True

pos_neg(-4, -5, True) → True

def pos_neg(a, b, negative):

Example 3

You and your friend are trying to get a table at a restaurant. The parameter "you" is the stylishness of your clothes, in the range 0..10, and "friend" is the stylishness of your friend 's clothes. The result getting the table is encoded as an integer value with 0=no, 1=maybe, 2=yes. If either of you is very stylish, 8 or more, then the result is 2 (yes). With the exception that if either of you has style of 2 or less, then the result is 0 (no). Otherwise the result is 1 (maybe).

friend_fashion(5, 10) → 2

friend_fashion(5, 2) → 0

friend_fashion(5, 5) → 1

def friend_fashion(you, friend):

Example 4

The squirrels in Park spend most of the day playing. In particular, they play if the temperature is between 60 and 90 (inclusive). Unless it is summer, then the upper limit is 100 instead of 90. Given an int temperature and a boolean is_summer, return True if the squirrels play and False otherwise.

squirrel_play(70, False) → True

squirrel_play(95, False) → False

squirrel_play(95, True) → True

def squirrel_play(temp, is_summer):

Example 5

You are driving a little too fast, and a police officer stops you. Write code to compute the result, encoded as an int value: 0=no fine, 1=small fine, 2=big fine. If speed is 60 or less, the result is 0. If speed is between 61 and 80 inclusive, the result is 1. If speed is 81 or more, the result is 2. Unless it is your birthday -- on that day, your speed can be 5 higher in all cases.

caught_speeding(60, False) → 0

caught_speeding(65, False) → 1

caught_speeding(65, True) → 0

def caught_speeding(speed, is_birthday):

Example 6

We want make a package of **goal** kilos of chocolate. We have small bars (1 kilo each) and big bars (5 kilos each). Return the number of small bars to use, assuming we always use big bars before small bars. Return -1 if it can't be done.

make_chocolate(4, 1, 9) → 4
make_chocolate(4, 1, 10) → -1
make_chocolate(4, 1, 7) → 2

def make_chocolate(small, big, goal):

Example 7

Input amount from user (amount should be greater than 0 and in multiples of 10). You have to return the Pakistan's currency denomination against the amount. For example, if user enters 9990, the output should be:

1 five thousand note

4 one thousand notes

1 five hundred note

4 one hundred notes

1 fifty rupee note

4 ten rupee notes