

Today's "Menu"

(week 9)

- Announcements
- Exceptions & Files
- Questions?

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Announcements

- Make sure you have the PIL working (as requested before the start of the term). You will need it next week.
- Exam II this week, please use **black** ink for more readability
- Due dates, myFranklin and assignments/me – ignore "tabs"??

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Your Real Age

```
from datetime import datetime

# birthdate/time:
#     year, month, day, hour, min, sec, millisec
start = datetime(2009, 10, 3, 9, 45, 0, 0)
age = datetime.now() - start

print 'Birthday/time :', start
print 'Your exact age:', age

raw_input()
```

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Files

- Persistent storage, way to save and retrieve data from disk/flash drive/...
- External vs Internal file names
- Input-/Output-files
- File modes: **r, w, a**
- File access: **random, sequential** (concept of “**file pointer**”)
- File types: **text, binary**
- File IO is **buffered**.

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Files (2)

- “**Saving**” a file/document => writing a file to disk (output file)
- “**Opening**” a document/file => reading a file from disk to RAM (input file)
- Remember to **close** a file when you are done with it – **buffered** IO!!

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Example

```
# assuming the file fits into memory, and
# you are interested in random lines

from random import randrange

f = open('data.txt') # open file for read (default)
data = f.readlines()
f.close() # done with file, always close it

number = len(data)
pick = randrange(0, number)
print data[pick]
```

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Exceptions

- Making programs “crash resistant”
- Modern (now common) language feature
- Use for “*exceptional*” circumstances only
- Exceptions are generated and “**thrown**” when a RT error occurs
- **Exceptions handlers “catch”** exceptions
- **Unhandled exceptions** result in a crash and **stack trace**.
(<http://cs.franklin.edu/~esmail/traceback.html>)

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Exceptions

- General format:

```
try:
    statement
    statement
    etc.
except eName:
    statement
    statement
    etc.
```

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```

import java.util.*;

// tiny Java program
// e.bonakdarian jan 2006, updated sept 2007, updated nov 2009

public class age
{
    public static void main(String args[])
    {
        final int DAYS_IN_YEAR = 365; // CONSTANT

        // set up keyboard input
        Scanner scan = new Scanner(System.in);

        // get information from the user
        System.out.print("\nWhat is your name? ");
        String name = scan.next();

        System.out.print("How old are you? ");
        int age = scan.nextInt();

        System.out.print("And your GPA is ...? ");
        double gpa = scan.nextDouble();

        int days_lived = age * DAYS_IN_YEAR;

        System.out.printf("\nAh, %s .. you are %d years old.\n", name, age);
        System.out.printf("So you have lived about %d days.\n", days_lived);
        System.out.printf(".. and this is the best you can do - %.2f??\n", gpa);
    }
}

```

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```

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```

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10:38 esmail@t61 ~ [510] java age

What is your name? Jasmin
How old are you? 37
And your GPA is ...? 3.6

Ah, Jasmin .. you are 37 years old.
So you have lived about 13505 days.
.. and this is the best you can do - 3.60??

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10:38 esmail@t61 ~ [510] java age

What is your name? Jasmin
How old are you? 37
And your GPA is ...? 3.6

Ah, Jasmin .. you are 37 years old.
So you have lived about 13505 days.
.. and this is the best you can do - 3.60??

10:39 esmail@t61 ~ [511] java age

What is your name? Frank
How old are you? old

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10:38 esmail@t61 ~ [510] java age

What is your name? Jasmin
 How old are you? 37
 And your GPA is ...? 3.6

Ah, Jasmin .. you are 37 years old.
 So you have lived about 13505 days.
 .. and this is the best you can do - 3.60??

10:39 esmail@t61 ~ [511] java age

What is your name? Frank
 How old are you? old

----- note, 23.5 would have crashed too!

Exception in thread "main" java.util.InputMismatchException
 at java.util.Scanner.throwFor(Scanner.java:840)
 at java.util.Scanner.next(Scanner.java:1461)
 at java.util.Scanner.nextInt(Scanner.java:2091)
 at java.util.Scanner.nextInt(Scanner.java:2050)
 at age.main(age.java:29)

10:40 esmail@t61 ~ [513]

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Sample Programs

- [number_file2.py](#)
[number file.py](#)
[pizza dude cool.py](#)
[pizza dude.py](#)
[real age.py](#)
[randread.py](#)

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Summary/Recap

- Questions?