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import scipy.constants as _sc
import numpy as np

# solar mass, radius, luminosity
Msun = 1.98848e30 # kg
Rsun = 6.957e8 # m
Lsun = 3.828e26 # W

#print("The Mean Molecular Weight for\
# interstellar gas is {:.5}".format(mue_gas))

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if __name__ == "__main__":

```

SNAKESHIT

A Short Musical

constants = [Book, Music, and Lyrics by D. Q. Pham

```

    ("solar mass", Msun, "kg"),
    ("solar radius", Rsun, "m"),
    ("solar luminosity", Lsun, "W"),
    ("gravitational constant", G, "m**3 s**-2 kg**-1"),
    ("Planck constant", h, "J s"),
    ("Planck constant, reduced", hbar, "J s"),
    ("electron mass", m_e, "kg"),
    ("proton mass", m_p, "kg"),
    ("neutron mass", m_n, "kg"),
    ("atomic mass unit", m_u, "kg"),
    ("speed of light", c, "m s**-1"),
    ("Boltzmann constant", k, "J K**-1"),
    ("parsec", pc, "m"),
    ("astronomical unit", au, "m"),
    ("year", year, "s"),

```

© D. Q. Pham ("Stefan-Boltzmann constant", sigmaSB, "W m**-2 K**-4")

Cast of Characters

<u>UNUK:</u>	Woman (preferably neither White/Asian), mezzo-soprano, an astronomy student who neglects Python.
<u>GUDJA:</u>	Woman, soprano, an astronomy professor who brings Python into an everyday language.
<u>MARFIK:</u>	Man, tenor, a student who understands Python.
<u>ALYA:</u>	Woman, alto, a student who understands Python.
<u>YED:</u>	Man, bass, a student who understands Python.

Place

Classroom

Time

1990s or 2000s

Musical Number

main(S)

Unuk

repeat(**STRANGLE**)

Company

print(**SLITHER OFF**)

Unuk and Gudja

Setting: A classroom contains a desk.

At Rise: UNUK, carrying a stack of papers, enters.

(Song: "S")

UNUK (breathlessly.)

UNUK. PLEASE TAKE A BREATH,
UNUK. SEMESTER'S DONE, UNUK.
ASTRONOMY, UNUK. WEED-OUT
COURSES OVER. DEEP RELEVANT
HOMEWORK.

(Placing the stack on the desk.)

THE SCOPE OF THE TELE.
BUTTERFLIES IN BELLY.
YOU ARE STELLAR, UNUK.
CONSTELLATIONS APART. TIME
TO TACKLE THE DARK.
SUPERNOVAE TO START.
LAGRANGIAN'S BEEN HARD.

(MARFIK, ALYA, and YED stroll in.)

COMMUNITIES OF STARS. SIGN
THAT ALL LEAVE A MARK.

(GUDJA, carrying a portable computer, marches in.)

A HOLY STAY, GUDJA.

(GUDJA examines the stack.)

THE BREAK'S BEGUN.

(GUDJA removes the stack. She places the computer on the desk.)

(They gather around the desk.)

(Song: "STRANGLE")

GUDJA

ALL I ASK OF YOUR MENTAL
ENVI-MENT. SAVE IT. EXPORT
THEM. YOU ALL DID THIS IN HIGH
SCHOOL.

(UNUK alienates the computer.)

PRESENT, WELCOME BACK TO
THE FUTURE!

(Activating the computer.)

(The computer throttles.)

(UNUK chokes up.)

TIME'S JUST A SCALAR
QUANTITY THOUGH.

(Pointing to the computer.)

FILE... COMPUTE ORBITS AND
ENERGIES FOR THE SMALLEST
TIMESTEPS FOR EACH
INTEGRATION. YED. ALYA.
MARFIK. U. N N SERPENTIS HAS
AN ELIPSICAL PERIOD. IT IS ONLY
PYTHON.

(Moving aside.)

(MARFIK, ALYA, and YED take control of the computer.)

MARFIK	ALYA	YED
README M D. ERROR ANALYSIS.	RUN MATPLOTLIB. ERROR ANALYSIS.	OPEN NUMPY. ERROR ANALYSIS.

(UNUK discreetly takes a piece of paper from the hidden stack.)

ENERGY PLOT FUNCTIONS AND
THE OUTPUT.

(UNUK writes on the paper.)

(MARFIK, ALYA, and YED turn their attention to UNUK.)

WHITE.	WHITE.	WHITE.
--------	--------	--------

(Taking the paper from UNUK.)

COLD WHITE DWARF STAR.
CALC-LATE MASS RADIUS. FOR
US.

(Setting UNUK up to the computer.)

MAKE YOURSELF USEFUL.	TRY TO BE ON TOP.	DON'T GET LEFT BEHIND.
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(UNUK holds her head.)

YES PRESSURE.	YES PRESSURE.	YES PRESSURE.
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(Pointing to the computer.)

(UNUK glances at the paper.)

(MARFIK, ALYA, and YED rip up the paper. They step aside. They occasionally scour through other papers in the hidden stack.)

UNUK (disorientedly.)

STRANGLEHOLD. I CANNOT SAY
IT IN ASTRONOMY. DON'T KNOW
COMPUTERS.

GUDJA

PYTHON IS ELEGANT SYNTAX,
SCRIPTING.

UNUK

ITS TYPE'S TOO... DYNAMICALLY.

GUDJA

PERHAPS QUIT ANALYZING THIS
TO HAVE DISCOV-RIES MADE ON
THE WEB.

(Moving aside.)

UNUK

NOTHING GOOD COMES OUT OF
RESEARCHING PYTHON ON THE
WEB.

(Typing then entering on the computer.)

WELCOME TO THE JAVA...

(Scrolling with conviction.)

(MARFIK, ALYA, and YED slithers back. They move UNUK aside and retake control of the computer.)

MARFIK

TOO MUCH
PRESSURE.
'QUATION OF
STATE UNIT.
P-D RELATIONSHIP, BRANCH UNCOMMIT.

ALYA

TOO MUCH
PRESSURE.
'QUATION OF
STATE TESTED.

YED

DENS-TY
DEFINED.
'QUATION OF
STATE UNIT.

(UNUK forces herself onto the computer. She
hastily types.)

(MARFIK, ALYA, and YED force UNUK off the
computer. They continue typing.)

STOP WITH
ARTISTRY.
SEE, NOTHING TOO
COMPLEX.
PLUS, 3 D AIN'T
WORTH IT.
PLUS,

STOP THIS
IMPRI-TY.
SEE, DO NOT FEEL
SO STRESSED.
PLUS, 3 D ARE FOR
NERDS.
PLUS,

STOP FEELING
FREELY.
SEE, JUST GIVE IT
A REST.
PLUS, 3 D LOADS
TOO SLOW.
PLUS,

(Directing towards each wall except the fourth wall.)

BOXED IN.

BOXED IN.

BOXED IN.

(Boxing in UNUK into the computer.)

UNUK (reluctantly.)

FOREST WITH ALL INTRICATE
PARTS ARE MY MORAL CODE.
NATURE SNAKING AROUND WILL
NOT DO.

(UNUK types away.)

FLUSH. FOR CODES SO LUSH.
BYTE STREAM TO PUBLIC
SERVER.

(GUDJA takes control of the computer.)

GUDJA

PRIVATE. PRIVATE. PRIVATE.

(Returning the computer then scouring through
papers in the hidden stack.)

MARFIK

ALYA

YED

STRANGLEHOLD.

STRANGLEHOLD.

STRANGLEHOLD.

(GUDJA returns the computer to UNUK.)

UNUK

JAVA. IT PROVIDES THE AIR TO
BREATHE.

MARFIK

ALYA

YED

LANGUAGE NATIVE TO HER PEOPLE.

UNUK (sorely.)

YOU WANT ME TO INTEGRATE.
SERVES YOU. LET ME JUST...

(Pressing CTRL and C.)

COPY.

(GUDJA, MARFIK, ALYA, and YED express
shock.)

PASTE.

(Mashing CTRL and V.)

GUDJA

YOU HAVE JUST BROKEN THE
CODE OF...

MARFIK

ALYA

YED

OFF... OF THE LAWS OF ENTROPY.

UNUK

THOUGH IT'S NOT BAROQUE,
WELL FIX CENTRAL PRESSURE
ARRAY FOR MASS-RADIUS TABLE
IN A LIGHTWEIGHT CLASS.

GUDJA

CONDUCT. SEE ME AF...

MARFIK

ALYA

YED

THIS BOX HAS NO ROOM FOR A
PARTICULAR MOLECULE.

UNUK

PLOT ROOM FOR JAVA...
PROGRAMMERS.

MARFIK

ALYA

YED

VET-NAR-ANS.

ENGINEERS.

PERFORMERS.

(Pointing out.)

UNUK

I AM JUST AS MUCH OF AN
ASTRONOMER AS YOU ARE WITH
YOUR PRIVILEGED SELVES WITH
OUR DEGREE.

MARFIK

ALYA

YED

UNUK. CHEATER.

UNUK. CODE
BREAKER.

UNUK. CHEATER.

UNUK

I AGREE TO OWN THIS FOR I HAVE
ONLY CHEATED MYSELF. OH
WELL.

(Looking to GUDJA for approval.)

THIS ASSIGNMENT, GIVE ME A
ZERO.

MARFIK

NOT FOR US.

ALYA

NOT FOR US.

YED

NOT FOR US.

UNUK

PLEASE, YOU'RE AN INTEGRAL
HERO.

GUDJA

'TERWARDS.

UNUK

SAKE OF GROUP, MY WILL SAYS
I'LL JUST HAVE TO RETAKE WITH
CLASS.

(GUDJA ponders at the hidden stack.)

COLLEGE WILL NOT JUST BE FOR
THE RICH AS I HOLD THE MANTLE
OF THE FIRST GENERATION.

(Feeling the weight of emotion.)

CHOKE.

(GUDJA dismisses MARFIK, ALYA, and YED.)

UNUK (Cont.)

I WILL NEVER DROP...

MARFIK

OUT.

ALYA

OUT.

YED

OUT.

(Exiting.)

(GUDJA deactivates the computer. She directs UNUK to her side. She grabs and sets down the stack.)

(Song: "SLITHER OFF")

GUDJA

YOU DON'T BELONG ON THIS
COURSE. YOUR WORK'S ALWAYS
BEEN TOO COMPLEX.

(Pointing out the stack.)

I KNEW WELL BEFORE I TOOK
YOU IN. JAVA'S A REL-TIVELY
NEW LANGUAGE.

(Handing the computer to UNUK.)

GET AHEAD WHILE YOU CAN.
DON'T GET CUT OFF. THERE ARE
TELESCOPES IN THE DISTANCE.
'STRON-MERS THAT CODE IN ALL
TONGUE. EXECUTE THE SCRIPT.

(Waving UNUK off.)

(UNUK appears mystified.)

RUN THE PROGRAM NOW!

(Departing.)

(UNUK may hold the computer. She may run out in the open. She activates the computer. She knows there is a lot to unpack.)

UNUK

THE WHOLE PACKAGE FOR A
UNIVERSE.

(Inhaling.)

AIR.

(Feeling lonely.)

‘ROR PROP-GATION.

(Collecting herself.)

DATA. READING. WRITING.
MANIPULATING.

(Feeling powerful.)

SYSTEM EXIT. ZERO.

(Pressing.)

FADE OUT

FIN