

COMPUTER SCIENCE 1A P02 DESIGN

Problem Description

The Utopian Electrical Supply Commission is in need of a system to forecast the likelihood of load-shedding based on the percentage of unplanned outages at each of its three power stations. Not every power station is equally crucial to the stability of the grid, so a weighted average is needed to calculate the overall likelihood. Since this is a crucial system you will need to report any errors encountered during the running of this program.

Input & Output

Input	
Integer Value (non-negative)	Standard Input Stream
Integer Value (non-negative)	Standard Input Stream
Integer Value (non-negative)	Standard Input Stream
Decimal Value (non-negative)	Standard Input Stream
Decimal Value (non-negative)	Standard Input Stream
Decimal Value (non-negative)	Standard Input Stream
Output	
Binary String	Standard Output Stream

Data Format

<i>Identifier</i>	<i>Data Type</i>	<i>Description</i>
WEIGHTS_ERROR	Integer	Base 10 number
CONVERSION_ERROR	Integer	Base 10 number
RANGE_ERROR	Integer	Base 10 number
intPercentage1	Integer (non-negative)	Base 10 number
intPercentage2	Integer (non-negative)	Base 10 number
intPercentage3	Integer (non-negative)	Base 10 number
dblWeight1	Double (non-negative)	Base 10 number
dblWeight2	Double (non-negative)	Base 10 number
dblWeight3	Double (non-negative)	Base 10 number
intLoadLikelihood	Integer	Base 10 number
dblSumWeight	Double	Base 10 number
strGabage	String	Base 16 digits sequence

Pseudo Code

Output \leftarrow "Enter percentage 1" intPercentage1

\leftarrow Input

TEST FOR VALID INPUT

Output \leftarrow "Enter percentage 2" intPercentage2

\leftarrow Input

TEST FOR VALID INPUT

Output \leftarrow "Enter percentage 3"

Intpercentage3 \leftarrow Input

TEST FOR VALID INPUT

Output \leftarrow "Enter weight for 1st Station"

dblWeight1 \leftarrow Input

TEST FOR VALID INPUT

Output \leftarrow "Enter weight for 2nd Station"

dblWeight2 \leftarrow Input

TEST FOR VALID INPUT

Output \leftarrow "Enter weight for 3rd Station" dblWeight3 \leftarrow

Input TEST FOR VALID INPUT dblSumWeight =

dblWeight1 + dblWeight2 + dblWeight3

intLoadLikelihood = (intPercentage1 * dblWeight1)

+ (intPercentage2 * dblWeight2)

+ (intPercentage3 * dblWeight3)

switch(intLoadLikelihood)

From 0 - 59

Output \leftarrow "Low"

From 60 - 79

Output \leftarrow "Medium"

From 80 - 100

Output \leftarrow "High"

Anything else

Output \leftarrow "Error"

UML Activity Diagram

