COMPUTER SCIENCE 1A P03 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

Identifier	*Data Type*	*Description*
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 ← “Enter percentage 1”

intPercentage1 ← Input

TEST FOR VALID INPUT

Output ← “Enter percentage 2”

intPerentage2 ← Input

TEST FOR VALID INPUT

Output ← “Enter percentage 3”

Intpercentage3 ← Input

TEST FOR VALID INPUT

Output ← “Enter weight for 1st Station”

dblWeight1 ← Input

TEST FOR VALID INPUT

Output ← “Enter weight for 2nd Station”

dblWeight2 ← Input

TEST FOR VALID INPUT

Output ← “Enter weight for 3rd Station”

dblWeight3 ← Input

TEST FOR VALID INPUT

dblSumWeight = dblWeight1 + dblWeight2 + dblWeight3

intLoadLikelihood = (intPercentage1 * dblWeight1)

+ (intPercentage2 * dblWeight2)

+ (intPercentage3 * dblWeight3)

switch(intLoadLikelihood)

From 0 - 59

Output ← “Low”

From 60 - 79

Output ← “Medium”

From 80 - 100

Output ← “High”

Anything else

Output ← “Error”

UML Activity Diagram