

Lab 5 – Exercise 3

Throwing a Ball

GIVENS: *(none)*

RESULT: *(none)*

INTERMEDIATES: velocity *(initial velocity of the ball)*
ranges *(reference to an array of ranges)*
n *(number of elements in the array)*
index *(index to traverse the array)*
theta *(angle to display results)*

HEADER : Main()

BODY:

GIVENS: *(none)*

RESULT: *(none)*

INTERMEDIATES: velocity *(initial velocity of the ball)*
ranges *(reference to an array of ranges)*
n *(number of elements in the array)*
index *(index to traverse the array)*
theta *(angle to display results)*

HEADER : Main()

BODY:

(Obtain the initial speed from the user)

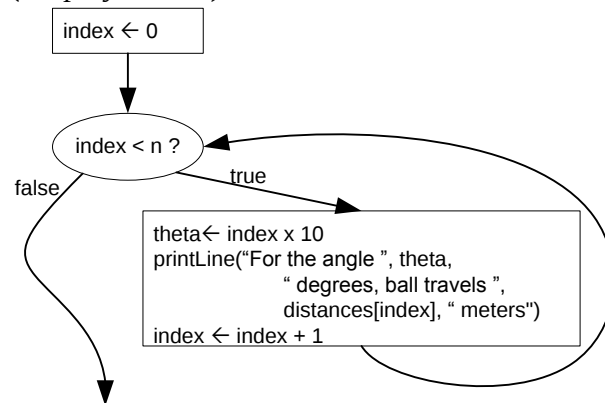
print("What is the initial velocity of the ball (m/s)? ")

velocity $\leftarrow$ readReal()

(Call to problem solving algorithm to calculate ranges)

(ranges, n) $\leftarrow$ calculateRanges(velocity)

(Display results)



GIVENS: v (initial velocity of the ball)

RESULT: ranges (reference to ball ranges for different angles)

INTERMEDIATES:

θ (horizontal angle, in degrees)

θ_{Rad} (horizontal angle, in radians)

degToRad (Constant: conversion degrees to radians)

numAngles (Constant: number of angles)

g (Constant: gravity = 9.8 m/s^2)

HEADER: $(\text{ranges}, \text{nbrAngles}) \leftarrow \text{calculateRanges}(v)$

BODY:

