CIS 1.5 Spring 2007 Lab 3, Part 2

Instructions

- This is the second part of the second homework/lab assignment for CIS 1.5. Read the first part of the assignment for complete instructions, due date and submission details.

1 More alignment

- Start with the program that you had at the end of Lab 3, Part 1.
- Define a new function `onSameSquare` which takes as parameters the the x and y values of both rabbit and fox, returns `true` if both the x values of the rabbit and the fox are the same, and the y values of the rabbit and the fox are the same.
- Your function should work by calling the function `aligned` that you wrote for the last part of Lab 3, Part 1.
- Hint: `onSameSquare` should return `true` when `aligned` gives `true` for both the x values of rabbit and fox and the y values of the rabbit and fox.

  (1 point)
- Save your working program as **hw3-2.cpp**.

2 Reference parameters

- Define a function `line-up` which puts the fox on the same row as the rabbit.
- The function should take two parameters, the y value of the rabbit and the y value of the fox.
- The function should not return any value.
- Hint: If you pass the y value of the fox as a reference parameter, then you can change it in the function and it will change within `main` also.

  (2 points)
- Save your working program as **hw3-3.cpp**.

3 Functions, files and arrays

- Write a program, from scratch, that will read a file of 12 integers into an array.
- These integers represent the x and y coordinates of the burrows of six rabbit families.
- The fox lives at $(10, 10)$.
- Write a function `howFarIsDinner` that takes as its parameters the location of a burrow (x and y value) and returns the distance of the burrow from the fox.
- Hint: You can use the function `distance` from the first part of the homework to do this.
- Write a loop that uses `howFarIsDinner` to print out the distance from the fox to each of the rabbit burrows.

  (2 points)
- Save your working program as **hw3-4.cpp**.

4 Extra credit question

- Now use `howFarIsDinner` to identify the burrow that is closest to the fox.
- Hint: To do this, remember how in class II.5 we used a loop to look through an array summarising the things that were in the array.

  Ideas on how to do this are in the program `arrays.cpp` on the page for Unit II on the course website.

  (1 point)
- Save your working program as **hw3-5.cpp**.