# Chapter 1 Getting Started

## Section 1.1

### Your Ride Is Here

Either define a new dictionary or use the built in python functions of ‘ord’ and ‘chr”/

### Greedy Gift Givers

Dictionary.

Calculations processed on dictionary.

Use indices instead of deleting stuff.

Hash Table??

### Friday the Thirteenth

1. Use the number of days in a month, and starting with the first 13 which is a Saturday, to go on to record the date of every 13.
2. Beware of years which have 366 days and the month of February.
3. Keep indices of the month and the year while counting.

4. Use the built-in python function ‘Counter’ to count the number of each element in the list.

### Broken Necklace

1. My solution: to move each bead from the front to the end and count it every time
2. Even better solution is to put two necklaces together to convert a circular string of beads to a single line of beads, which will save us the trouble of shuffling a single group of beads around too much.
3. Use four lists to record the numbers, we should. Make the complexity of the algorithm much lower, basing the statistics of a new position on previous ones will.

## Section 1.2

### Milking Cows

1. The beginning and ending times, use a fresh list to record.
2. Make the process easier, adding new elements to a list instead of processing the existing list will.
3. After the occupied time comes out, the interval be determined.

### Transformations

1. To do flipping and transforming, use a matrix we must.
2. Built-in functions of python, beware we must.

### Name That Number

1. My solution: get all the possible combinations for the input number
2. A better solution: get all the number representations for the valid names in the dictionary. Then compare the numbers with the actual input number. This decreases the complexity of the algorithm to O(6e4), a constant number.

### Palindromic Squares

List all the possible squared values, and use a function to decipher whether it fits the requirements.

Note that 11, 12, 13 and so on in bases larger than 10 should be written as A, B, C and so on.

### Dual Palindromes

Similar to the above

## Section 1.3

### Mixing Milk

Arrange the milk according to the price of an individual unit of milk.

A better solution would be to directly combine different farmers with the same price when filing in the data.

### Barn Repair

1. Calculate the number of empty stalls between any two adjacent filled stalls.
2. Because there are M boards, there can be M-1 intervals between any two stalls, and to maximize the interval, we simply choose the M-1 largest numbers from the interval list.

### Prime Cryptarithm

Simply list all the possible situations.

### Combination Lock

1. Simply list all possible solutions to see if they are close enough
2. The code could be simplified if we divide the trying process into two separate functions, one deciding if two integers are close enough, the other deciding if two groups of integers are close enough by making use of the previous function.

### Wormholes

1. The use of recursion. Doing something repeatedly by calling a function from within itself.
2. When analyzing, divide the main problem into multiple smaller problems to be dealt with individually.
3. Global and Local variables, confounded they should not be.
4. Save the program in a separate file before making substantial alterations to it

### Ski Course Design

## Section 1.4

### Arithmetic Progressions

### Mother’s Milk

## Section 1.5

### Number Triangles

### Prime Palindromes

### SuperPrime Rib

# Chapter 2 Bigger Challenges

## Section 2.1

### The Castle

### Ordered Fractions

### Sorting A Three-Valued Sequence

### Healthy Holsteins

### Hamming Codes

## Section 2.2

### Preface Numbering

### Subset Sums

### Runaround Numbers

### Party Lamps

## Section 2.3

### The Longest Prefix

### Cow Pedigrees

### Zero Sum

### Money Systems

### Controlling Companies

## Section 2.4

### The Tamworth Two

### Overfencing

### Cow Tours

### Bessie Come Home

### Fractions to Decimals

# Chapter 3 Techniques More Subtle

## Section 3.1

### Agri-Net

### Score Inflation

### Humble Numbers

### Contact

### Stamps

## Section 3.2

### Factorials

### Stringsobits

### Spinning Wheels

### Feed Ratios

### Magic Squares

### Sweet Butter

## Section 3.3

### Riding The Fences

### Shopping Offers

### Camelot

### Home on the Range

### A Game

## Section 3.4

### American Heritage

### Electric Fence

### Raucous Rockers

# Chapter 4 Advanced Algorithms and Difficult Drills

## Section 4.1

### Beef McNuggets

### Fence Loops

## Section 4.2

### Drainage Ditches

### The Perfect Stall

### Job Processing

## Section 4.3

### Buy Low, Buy Lower

### Street Race

### Letter Game

## Section 4.4

### Shuttle Puzzle

### Pollutant Control

### Frame Up

# Chapter 5 Serious Challenges

## Section 5.1

### Fencing the Cows

### Starry Night

### Musical Themes

## Section 5.2

### Snail Trail

## Section 5.3

### Milk Measuring

### Window Area

### Network of Schools

### Big Barn

## Section 5.4

### Canada Tour

### Character Recognition

### TeleCowmunication

## Section 5.5

### Picture

### Hidden Passwords

### Two Five

# Chapter 6 Contest Practice

## Section 6.1

### Postal Vans

### A Rectangular Barn

### Cow XOR

## Section 6.2

### Calf Flac

### Packing Rectangles

### Shaping Regions

## Section 6.3

### Fence Rails

### Cryptcowgraphy

### Cowcycles

## Section 6.4

### The Primes

### Electric Fences

### Wisconsin Squares

## Section 6.5

### All Latin Squares

### Closed Fences

### Betsy’s Tour

### The Clocks

### Checker Challenge

题解：

<https://wenku.baidu.com/view/1a2d4c7d27284b73f2425001.html>