COMP2611/COMP2000 – Data Structures
Semester 3, 2017-2018
Assignment 1

Predictive Text **Due: 11.55 p.m., June 10th, 2018**

On a non-touch screen mobile phone, a text message word can be created by pressing the digits 2 to 9. For example, to spell the word **rake**, you press 7 three times, 2 once, 5 twice and 3 twice.

In so-called 'predictive text' mode, you will press 7 2 5 3 – each digit once and the phone will try and figure out which word you want. If there are several possibilities, it will allow you to choose the one you want. In this example, possible words are **pale**, **rake**, **sake** and **sale**. The phone uses a dictionary to decide which combinations of letters are valid.

The letters associated with each digit are shown in the image below.

Data are stored in the file **input.txt**.

The first part of the data consists of the words in the dictionary in arbitrary order, one word per line. Assume each word is no longer than 10 letters and there are no more than 100 words in the dictionary. This part of the data is terminated by the word **$$$$**.

Following the dictionary is a set of 'digit' strings, one per line. For each string, print all possible 'dictionary' words which can be formed from that string. This part of the data is terminated by 0.

All output must be sent to the file **output.txt**.

You *must* use a binary search to look-up the dictionary.

You may assume that all data are valid.

Submission Details:

1. Submit one C or C++ file labeled with your ID number.
2. Include your full name, in comments, at the top of your program.
3. Email your submission to **ssooklal27@gmail.com**.