Homework 3 (due 2/6)

1. (20 pts.) Write a complete C++ program to output the top 20 most frequently used words in a text file, in sorted order, starting with the highest frequency. The file name should be read from input. If the file has only $k < 20$ different words, then only k entries are printed.

   Example: the output for `short.txt` (in homework directory) is

   ```
   2 this
   2 test
   2 is
   1 another
   1 a
   ```

   Example: the output for `anna_karenina.txt` (in homework directory) is

   ```
   16266 the
   11494 and
   9899 to
   8442 of
   6146 he
   5935 a
   5482 in
   5158 was
   5035 his
   4661 that
   3887 her
   3810 had
   3643 with
   3353 she
   3218 not
   2827 I
   2716 at
   2469 for
   2363 it
   2287 as
   ```

   Example: the output for `don_quixote.txt` (in homework directory) is

   ```
   20758 the
   16571 and
   13417 to
   12744 of
   7164 that
   6956 a
   6801 in
   5773 I
   5693 he
   4537 for
   4517 his
   4258 as
   4193 it
   3485 is
   3476 with
   ```

```
3423 was
3403 not
2996 be
2713 my
2539 Don
```

Notes:

1. Use `map<string, int>` to keep track of the frequency count for each word.

2. Each element of `map<string, int>` is a `pair<string, int>`, which has two fields: `first` and `second`.

3. `pair` is declared in the header file `<utility>`.

4. `map` cannot be sorted. To sort the pairs using the `second` field (frequency count), first copy the contents of your `map<string, int>` to a `vector<pair<int, string>>` (note that the order of the fields is reversed) and then sort the vector.

You must turn in by noon of the due date:

- a hard copy of your code with your name, section number, and sample output; and

- send **one** email message with the subject line: `HW3 Your_last_name Your_section` to `cs60@math.scu.edu` with your code attached. Please do **not** zip your file.