Hash Table and Generic ADT

Project 3

Hash Table (1st week)

- Change directory to "strings"
- Create table.c to implement the set operations with hash table

```
SET *createSet(int maxElts);

void destroySet(SET *sp);

int numElements(SET *sp);

void addElement(SET *sp, char *elt);

void removeElement(SET *sp, char *elt);

char *findElement(SET *sp, char *elt);

char **getElements(SET *sp);
```

Hash Table (1st week)

- An additional array of flags (EMPTY, FILLED, DELETED)
- Use the hash function from the lecture:

```
unsigned strhash(char *s)

{

    unsigned hash = 0;

    while (*s != '\0')

        hash = 31 * hash + *s ++;

    return hash;

}
```

(Hash value may exceed the max length of the set)

Note

- removeElement do not need to move element

- getElements should go through the entire table

- Use "-l" with unique program to test getElements:

    ./unique -l /scratch/coen12/Macbeth.txt /scratch/coen12/Bible.txt

report.txt

- Copy the result from lab2 and add a new column for "hashing"

```
unique
------
                              unsorted   sorted   hashing
GreenEggsAndHam.txt           ????       ????     ????
Macbeth.txt                   ????       ????     ????
Genesis.txt                   ????       ????     ????
HoundOfTheBaskervilles.txt    ????       ????     ????
TheWarOfTheWorlds.txt         ????       ????     ????
TreasureIsland.txt            ????       ????     ????
TheSecretGarden.txt           ????       ????     ????
TwentyThousandLeagues.txt     ????       ????     ????
TheCountOfMonteCristo.txt     ????       ????     ????
Bible.txt                     ????       ????     ????


parity
------
                              unsorted   sorted   hashing
GreenEggsAndHam.txt           ????       ????     ????
Macbeth.txt                   ????       ????     ????
Genesis.txt                   ????       ????     ????
HoundOfTheBaskervilles.txt    ????       ????     ????
TheWarOfTheWorlds.txt         ????       ????     ????
TreasureIsland.txt            ????       ????     ????
TheSecretGarden.txt           ????       ????     ????
TwentyThousandLeagues.txt     ????       ????     ????
TheCountOfMonteCristo.txt     ????       ????     ????
Bible.txt                     ????       ????     ????
```