Some Hints

- Read a file:

```
FILE *fp;

fp=fopen(“patient1.txt", “r”);
```

- Read a line from the file:

```
char *fgets(char *str, int n, FILE *stream)
```

- Close a file

```
fclose(“patient1.txt”);
```

- Example:

```
#include <stdio.h>

int main()
{
   FILE *fp;
   char str[60];

   /* opening file for reading */
   fp = fopen("file.txt" , "r");
   if(fp == NULL) {
      perror("Error opening file");
      return(-1);
   }
   if( fgets (str, 60, fp)!=NULL ) {
      /* writing content to stdout */
      puts(str);
   }
   fclose(fp);

   return(0);
}
```

- C string: <string.h>

1. strcpy(s1, s2);
Copies string s2 into string s1.

2. strlen(s1);
Returns the length of string s1.

3. strcmp(s1, s2);
Returns 0 if s1 and s2 are the same; less than 0 if s1<s2; greater than 0 if s1>s2.

4. char *strtok(char *str, const char *delim)

Breaks string **str** into a series of tokens using the delimitrer **delim**.

- Example of using **strtok()**:

```
#include <string.h>
#include <stdio.h>

int main()
{
   const char str[80] = "This is - www.tutorialspoint.com - website";
   const char s[2] = "-";
   char *token;

   /* get the first token */
   token = strtok(str, s);

   /* walk through other tokens */
   while( token != NULL )
   {
      printf( " %s\n", token );

      token = strtok(NULL, s);
   }

   return(0);
}
```

Let us compile and run the above program, this will produce the following result:

```
This is
www.tutorialspoint.com
website
```

• Read and Print out on terminal:

The **char *gets(char *s)** function reads a line from **stdin** into the buffer pointed to by **s** until either a terminating newline or EOF.

The **int puts(const char *s)** function writes the string s and a trailing newline to **stdout**.

Example:

```
#include <stdio.h>
int main( )
{
   char str[100];

   printf( "Enter a value :");
   gets( str );

   printf( "\nYou entered: ");
   puts( str );

   return 0;
}
```

Note: can also use scanf() and printf(): http://www.tutorialspoint.com/cprogramming/c_input_output.htm

- TCP Sockets:
  - https://www.cs.rutgers.edu/~pxk/417/notes/sockets/index.html
- UDP Sockets, especially **BIDIRECTIONAL COMM** :
  - https://www.cs.rutgers.edu/~pxk/417/notes/sockets/udp.html