

## CSI 333 – Programming at the Hardware-Software Interface

### Handout 6.3

The following program is similar to the program in Handout 6.1. It reads characters from an input file called `input.dat`. It filters out the vowels (upper and lower case) from the input file. That is, it writes each character that is *not* a vowel to the output file called `output.dat`.

You should note the way the files are opened for reading/writing, the use of the library functions `getc`, `putc` and the way files are explicitly closed in the program.

The input and output file names are hardcoded into the program. We will see later how the program can be written so that the file names can be specified at run time.

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

int main(void)
{

    char *infile = "input.dat" ; /* Input file name. */
    char *outfile = "output.dat"; /* Output file name. */

    FILE *finp; /* File pointer for input file. */
    FILE *fout; /* File pointer for output file. */

    int c; /* To read chars from input file. */
    int is_vowel(int); /* Prototype of function used. */

    /* Open the input file for reading. */

    if ((finp = fopen(infile, "r")) == NULL) {
        /* Open failed. */
        printf("Could not open file input.dat for reading.\n");
        exit(1);
    }

    /* Open the output file for writing. */

    if ((fout = fopen(outfile, "w")) == NULL) {
        /* Open failed. */
        printf("Could not open file output.dat for writing.\n");
        exit(1);
    }

    /* Both input and output files opened successfully. Read */
    /* characters from input file, filter out vowels and */
    /* write the other characters to the output file. */
```

```

while ((c = getc(finp)) != EOF) { /* Note the use of getc. */
    if (!is_vowel(c))
        putchar(c, fout); /* Note the use of putchar. The file pointer is */
                          /* the second argument. */
} /* End of while. */

if (fclose(finp) != EOF) { /* Error in closing input file */
    printf("Error in closing file input.dat.\n");
}

if (fclose(fout) != EOF) { /* Error in closing output file */
    printf("Error in closing file output.dat.\n");
}
return 0;
} /* End of main. */

int is_vowel(int c) {

    /* Returns 1 if parameter c is a vowel (upper or lower case) */
    /* and 0 otherwise. */

    /* First, convert c to lower case, if it is an upper case letter. */
    c = tolower(c);

    /* Now, we need to check only whether c is a lower case vowel. */
    if ((c == 'a') || (c == 'e') || (c == 'i') || (c == 'o') || (c == 'u'))
        return 1;
    else return 0;

} /* End of is_vowel. */

```