

Module 1 solutions

Hello World!

Create a file (`hello.c`) with the following content:

```
#include <stdio.h>

int main(void)
{
    printf("Hello World!\n");
    return 0;
}
```

Create a file `Makefile` with the following content:

```
CFLAGS= -Wall -std=c99
LDLIBS= -lm
```

Notice the flag `-lm` assigned to the `LDLIBS` variable. This tells the linker to link against the math library `libm` which is needed in exercises where we make use of functions defined in the header file `math.h`.

Compile and run the program using the following commands:

```
$ make hello
$ ./hello
Hello World!
```

Programming Project 2 & 3 (p. 34)

Create a file (`king_ch2pp2.c`) with the following content:

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

#ifndef M_PI /* M_PI may not be defined in math.h */
#define M_PI (3.14159265358979323846264338327950288)
#endif /* M_PI */

int main(void) {
    double r;
    printf("Enter radius: ");
    if (scanf("%lf",&r)!=1) {
        printf("Failed to a floating point number. Quitting.\n");
        return -1;
    }
}
```

```
    printf("Volume: %.3f m3\n", 4.0f/3.0f*M_PI*r*r*r);
    return 0;
}
```

Compile and run the program using the following commands:

```
$ make king_ch2pp2
$ ./king_ch2pp2
```

Chapter 3, exercise 1

Create a file (`king_ch3ex1.c`) with the following content:

```
#include <stdio.h>

int main(int argc, char const *argv[]) {

    printf("Exercise 1\n");
    printf("(a) %6d,%4d\n", 86, 1040);
    printf("(b) %12.5e\n", 30.253);
    printf("(c) %.4f\n", 83.162);
    printf("(d) %-6.2g\n", .0000009979);

    return 0;
}
```

Compile and run the program using the following commands:

```
$ make king_ch3ex1
$ ./king_ch3ex1
```

Chapter 3, exercise 2

- (a) `printf("%-8.1e",x);`
- (b) `printf("%10.6e",x);`
- (c) `printf("%-8.3f",x);`
- (d) `printf("%6.0f",x);`