For Next Day 1:

Von Neumann architecture:

Von Neumann architecture is a description of a type of computer. It is often described with these following things: A central processing unit where arithmetic and control operations are performed, memory for data and processor instructions, any type of mass storage/persistent data, and input output devices, in any form. This idea is still the basis for computers as we know them today.

Stored Program concept:

The idea of a stored program is that of being able to read a program from electrical signals or optically, as opposed to storing them more physically on a plugboard. It is often stated that a stored program concept must also have the program and data be stored in memory at the same location, as opposed to keeping program and data memory separate.

Screenshots of compiling to preprocessor:

```
[00:22:20] ~\..\..\..\..\..\..\Lec1src on > gcc -E first.c > preprocessor.txt
[00:22:49] ~\..\..\..\..\..\..\Lec1src on > cat .\preprocessor.txt
# 1 "first.c"
# 1 "<built-in>"
# 1 "<command-line>"
# 1 "first.c"

# 1 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/stdio.h" 1 3
# 9 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/stdio.h" 3
# 1 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/corecrt_stdio_config.h" 1 3
# 10 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/corecrt_stdio_config.h" 3
# 1 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/corecrt.h" 1 3
# 10 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/corecrt.h" 3
# 1 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/_mingw.h" 1 3
# 10 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/_mingw.h" 3
# 1 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/_mingw_mac.h" 1 3
# 98 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/_mingw_mac.h" 3

# 107 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/_mingw_mac.h" 3

# 11 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/_mingw.h" 2 3
# 1 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/_mingw_secapi.h" 1 3
# 12 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/_mingw.h" 2 3
# 287 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/_mingw.h" 3
# 1 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/vadefs.h" 1 3
# 9 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/vadefs.h" 3
# 1 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/_mingw.h" 1 3
# 621 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/_mingw.h" 3
# 1 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/sdks/_mingw_ddk.h" 1 3
# 622 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/_mingw.h" 2 3
# 10 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/vadefs.h" 2 3




#pragma pack(push,_CRT_PACKING)
# 24 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/vadefs.h" 3

# 24 "C:/Programs/MSYS2/mingw64/x86_64-w64-mingw32/include/vadefs.h" 3
 typedef __builtin_va_list __gnuc_va_list;
```

Compiling to object file:

```
[00:22:52] ~\..\..\..\..\..\..\Lec1src on > gcc -c first.c
[00:24:34] ~\..\..\..\..\..\..\Lec1src on > ls

    Directory: C:\Users\isaac\OneDrive - University of New Brunswick\Year 2 UNB\CS2263\ForNextDay\Lec1\Lec1src\Lec1src

Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
la---          2020-05-04     09:12         12556 first
la---          2020-05-04     09:13           197 first.c
la---          2021-09-09     20:42        297800 first.exe
-a---          2021-09-10     00:24          1165 first.o
la---          2021-09-10     00:22         95669 preprocessor.txt
```

Linking using object file:

```
[00:24:35] ~\..\..\..\..\..\..\Lec1src on >  gcc -o mine first.o
[00:25:16] ~\..\..\..\..\..\..\Lec1src on >  ls


    Directory: C:\Users\isaac\OneDrive - University of New Brunswick\Year 2 UNB\CS2263\ForNextDay\Lec1\Lec1src\Lec1src


Mode                LastWriteTime         Length Name
----                -------------         ------ ----
la---         2020-05-04     09:12          12556 first
la---         2020-05-04     09:13            197 first.c
la---         2021-09-09     20:42         297800 first.exe
la---         2021-09-10     00:24           1165 first.o
-a---         2021-09-10     00:25         297800 mine.exe
la---         2021-09-10     00:22          95669 preprocessor.txt
```

Running using various inputs on the command line:

```
[00:25:18] ~\..\..\..\..\..\..\Lec1src on >  ./mine
main: a = 5, b = 17, argc = 1
[00:26:02] ~\..\..\..\..\..\..\Lec1src on >  ./mine one two
main: a = 5, b = 17, argc = 3
[00:26:06] ~\..\..\..\..\..\..\Lec1src on >  ./mine one two buckle my shoe
main: a = 5, b = 17, argc = 6
```

Brief description of the printf() statement:

The printf statement specifies a format to print. The first input being the string that is to be formatted, and each %d specifies a decimal integer to be formatted into in order of the variables passed in after the commas in the printf arguments. The first %d is printed as variable a, the second %d is printed as variable b, and the third %d is printed as argc. The \n means newline.