Compiling premise in Windows

Xinyuan Cheng

August 2025

1. Environment Setup

1. Download and install MSYS2 from `https://www.msys2.org/`.

2. Launch the **MSYS2 UCRT64** terminal from the Start Menu.

3. Run the following commands to install dependencies:

```
pacman -Syu
pacman -S base-devel git mingw-w64-ucrt-x86_64-toolchain
```

2. Cloning and Preparing the Code

1. Clone the repository:

```
git clone https://github.com/uds-lsv/premise.git
cd premise/code
```

2. **Important:** Before building, you must apply the following code modifications:

   - Add `#include <cstdint>` to the following files:
     - `bitcollection.h`
     - `embeddings.h`
     - `mdlmath.h`
     - `graph.h`
     - `graph.cpp`
   - Replace `{false, 0}` with `adjEntry(false, 0)` in `graph.cpp`.

3. Makefile Modifications for Static Linking

To ensure the resulting executable does not require runtime DLLs such as `libstdc++-6.dll`, add the following to the Makefile:

```
LDFLAGS = -static -static-libgcc -static-libstdc++
```

And update the linking rules:

```
${PROGNAME}: ${OBJECTS}
 ${CXX} ${CXXFLAGS} ${OBJECTS} -o $@ -lstdc++fs ${LDFLAGS}
```

4. Building and Testing

Clean previous builds and compile:

```
make clean
make
```

5. Summary

- Output: `Premise_Windows.exe`
- Architecture: 64-bit Windows