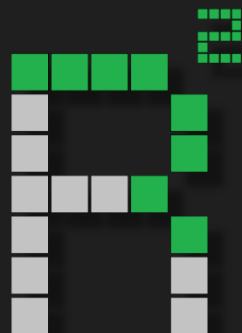# Rogue Reborn

Team Rogue++
{ Ian Prins
Or Almog
Mikhail Andrenkov

Lab 03 | Group #6

Purpose and Scope

Purpose   >   Develop an enhanced version of the original Rogue (1980)

              >   **Client:** UI and Gameplay

              >   **Development:** Design, Documentation, and Testing

Scope   >   Implement virtually all functionality present in the original version

           >   Faithful improvements over non-functional qualities such as learnability and aesthetics

Motivation

Development

Strategy

> **Communication:** Weekly group meetings

> **Requirements:** Avoid unnecessary constraints

> **Authenticity:** Reference the original source code when possible

```c
boolean
mon_sees(monster, row, col)
object *monster;
{
    short rn, rdif, cdif, retval;

    rn = get_room_number(row, col);

    if (    (rn != NO_ROOM) &&
            (rn == get_room_number(monster->row, monster->col)) &&
            !(rooms[rn].is_room & R_MAZE)) {
        return(1);
    }
    rdif = row - monster->row;
    cdif = col - monster->col;

    retval = (rdif >= -1) && (rdif <= 1) && (cdif >= -1) && (cdif <= 1);
    return(retval);
}
```

```c
static long rntb[32] = {
            3, 0x9a319039, 0x32d9c024, 0x9b663182, 0x5da1f342,
    0xde3b81e0, 0xdf0a6fb5, 0xf103bc02, 0x48f340fb, 0x7449e56b,
    0xbeb1dbb0, 0xab5c5918, 0x946554fd, 0x8c2e680f, 0xeb3d799f,
    0xb11ee0b7, 0x2d436b86, 0xda672e2a, 0x1588ca88, 0xe369735d,
    0x904f35f7, 0xd7158fd6, 0x6fa6f051, 0x616e6b96, 0xac94efdc,
    0x36413f93, 0xc622c298, 0xf5a42ab8, 0x8a88d77b, 0xf5ad9d0e,
    0x8999220b, 0x27fb47b9
};
```
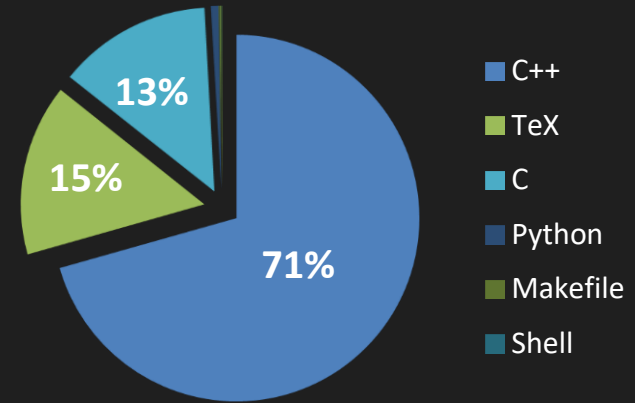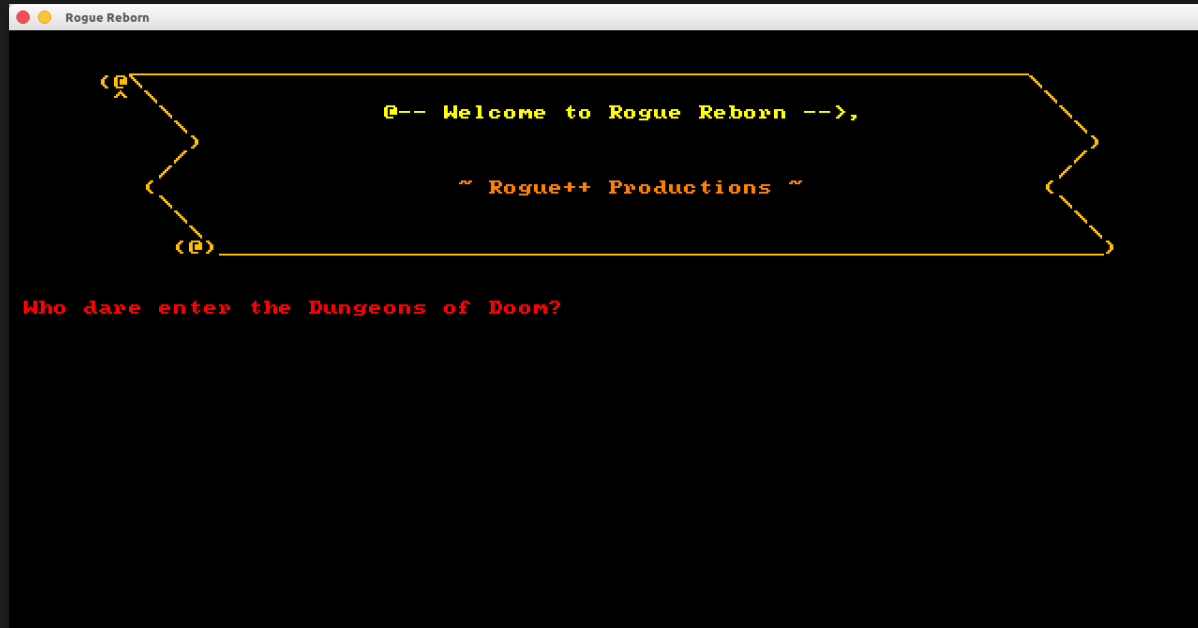
Coding Technologies

C++ > Efficient, object-oriented, and industry standard (8000+ lines)

Libtcod > Graphics library for emulating a roguelike experience

Other > CI (Continuous Integration)
Git
Make
g++ Dependency Detection
Valgrind (Memory Profiler)
GDB (GNU Debugger)

- C++ — 71%
- TeX — 15%
- C — 13%
- Python
- Makefile
- Shell

Demonstration

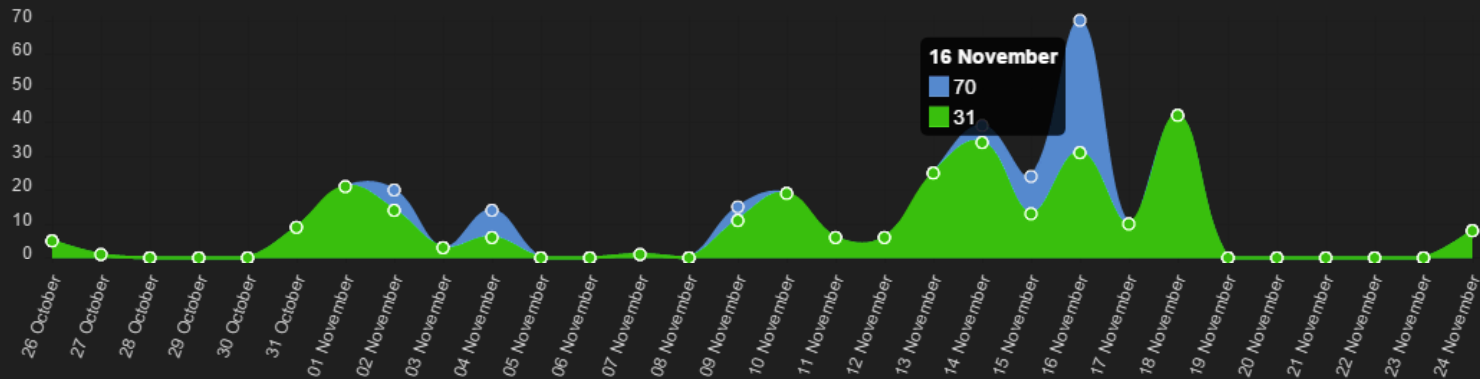# The R^2 Touch

Robustness

> Enabled CI to ensure dysfunctional code changes are flagged

> Ensured compilation did not generate warnings
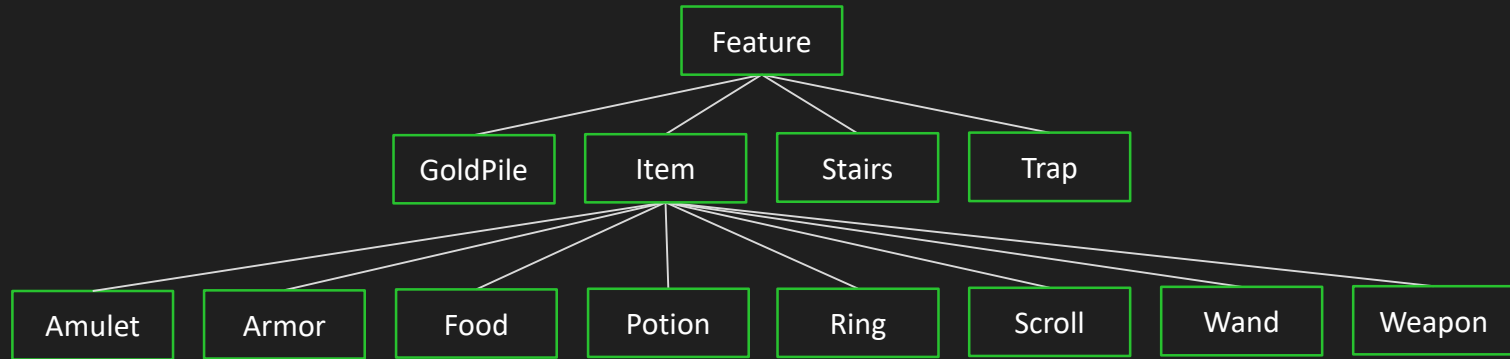
> Used profiler tools to analyze memory leak performance

The R^2 Touch Cont'd

Maintainability

> Designed header files to hide implementation secrets

> Generated comprehensive documentation for all modules

> Used GitLab issue tracking to document bugs and known issues

```
                        ┌─────────┐
                        │ Feature │
                        └─────────┘
             ┌───────────┬──┴──┬───────────┐
        ┌─────────┐ ┌─────────┐ ┌─────────┐ ┌─────────┐
        │ GoldPile│ │  Item   │ │ Stairs  │ │  Trap   │
        └─────────┘ └─────────┘ └─────────┘ └─────────┘
```

Amulet	Armor	Food	Potion	Ring	Scroll	Wand	Weapon

Final Remarks

Project   >   Rogue Reborn was successful in establishing an authentic and

            entertaining Rogue experience

            >   Success was enabled by frequent contributions (800+ commits),

            regular communication, and honest feedback

            >   Application of the Rational Design Process and development tools

            facilitated the development of maintainable and robust software

Next Steps >   Implement audio features; prepare game for distribution

Questions