```
ColorConfig
| - filename: str
| - primary: str
| - off: str
| + __init__(filename="colors.json") |
| + is_valid_hex(color: str): bool |
| + load_colors(): void
     | used by
     UVSimGUI
| - root: Tk
| - sim: UVSim
| - load: Load_Program
| - colors: ColorConfig
| - memory_entries: list[Entry] |
| - output_lines: list[str]|
| - file_loaded: bool
| - run_button: Button
| - mem_canvas: Canvas
| - accumulator_var: StringVar |
| + __init__(root: Tk)
| + build_widgets(): void
| + load_file(): void
| + save_file(): void
| + save_memory_entry(index: int, value: str) |
| + sync_entries_to_memory(): bool
| + run_program(): void
| + step_through_program(): void
| + show_read_popup(operand: int): int
| + update_memory_display(): void
| + update_output(): void
| + clear_output(): void
| + open_file_in_new_window(): void
   uses
                                      has-a
                                                                        uses
  UVSim
                               | Load_Program
                                                                           Convert
                                  ----+
                                                                     | + convert_to_int(word): int or False |
| - cpu: CPU |
                               | - memory: Memory
```

```
| - file_converter: FileConverter |
| - memory: Memory
                            +----+
+----+
                            | + __init__(): void
| + run(): void|
                            | + load_program(filename: str): void |
                             +----+
    | has-a
   CPU
+----+
| - accumulator: int
| - program_counter: int
| - halted: bool
+----+
| + __init__() |
| + execute(instruction: int, memory: Memory): void |
+----+
     \blacktriangle
    uses
+----+
| Memory
+----+
| - memory: list[MemoryRegister] |
| - read_callback
| - waiting_for_input: bool
+----+
| + __init__()
| + write(address: int, value: int): void |
| + read(address: int): int
+----+
     \blacktriangle
    has-a
| MemoryRegister |
+----+
| - value: int |
+----+
| + __init__(value=0)
| + set(value: int): void
| + get(): int
| + __repr__(): str
     | called by
```

| main.py | +-----+ | + main(): void | +-----+