# Compilers Project VGM

Phase 2

# Project Roles

- **Beeram Sandya** *(Language Guru)* : Written code related to loops, return statements and matrix implementation. Involved in language design, documentation and specification.
- **Challa Akshay Santoshi** *(System Integrator)* : Written the code related to conditional statements, declaration statements, vector and graph implementations and output formatting. Involved in optimization of the code and ensured the integration of the lexer and parser.
- **Cheekatla Hema Sri** *(System Architect)* : Written the code related to functions, expression statements, jump statements, call statements, arithmetic operations and string method implementations. Responsible for handling various language constructs. Made modifications to ensure modularity.
- **Potta Vennela** *(Project Manager)* : Create a project plan, defining objectives and deliverables, and maintained a project log.

# Phase_2

- Our DSL is named as VGM as our focus is mainly on vectors, graphs and matrices
- It also has many other implementations like arrays, strings and more
- The goal of this phase is to conduct the lexical and syntax analysis of the language
- Lexical analysis is the early stage of compiler where the program is broken down to tokens
- We have written code for generating tokens in a file called "lexer.l"
- Regular expressions are defined for corresponding tokens
- We have written the regular expressions in the "lexer.l" file
- The corresponding tokens are printed in a file called "tokens.txt"

- Syntax analysis or Parsing is the next stage of the compiler
- A Context Free Grammar has to be written for the syntax definition
- CFG and the token types are written using yacc specification in the file called "parser.y"
- The output (similar to assignment 2) is printed to a file called "parsed.txt"
- The input (program to be checked for parsing) has to be placed in the file called "input.txt"
- The test cases for this second phase are written in the compilers_project/testcases/phase2 directory

# Steps for Execution

- Go the directory compilers_project/phase2
- The following commands are present in the "run.sh" file:
  - yacc -d parser.y
  - lex lexer.l
  - gcc lex.yy.c y.tab.c -w
  - ./a.out
- Execute the command 'bash run.sh' to get the output int the corresponding files
- In case there is an error in the syntax of the given input program, an error message with the line number can be seen in the terminal