GENETIC ALGORITHM ASSISTED DECISION

MAKING FOR DATA BASED RESIDENCE ROOF

TRUSS SYSTEM

WUKAI KONG

Z5155304

RESEARCH INTRODUCTION

# RESEARCH AIMING

EXISTING PROBLEMS

- The Not Sharing Idea Are Effecting The Architecture Industry

- Losing Of Trusted Structural Data It Is Hard To Convince That The Current Design Is Better

- Structural Diversity Is Limited Due To Design Period Requirement

POTENTIAL SOLUTIONS

- Creation Of Database Systems Is Helping Architects To Share Their Ideas

- The Genetic Algorithm Will Provide The Best Solution From The Existing Database Generation

- Architects Has More Choice And More Time To Develop New Truss System

RESEARCH BACKGROUND
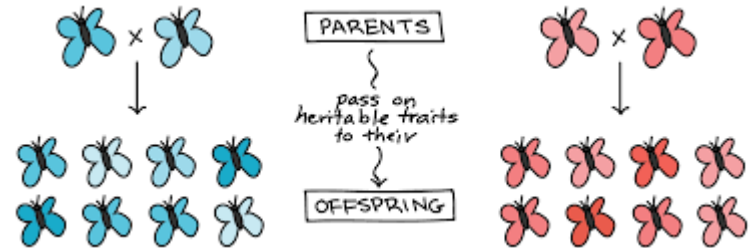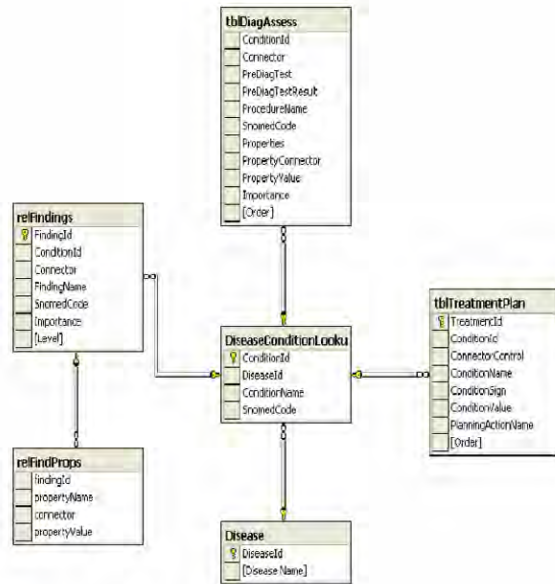
RESEARCH CIRCLE

IDEA INSPIRATIONS — BACKGROUND RESEARCH — RESULT ANALYSISING

METHODOLOGY DEVELOPMENT

RESEARCH METHODOLOGY

PROJECT WORKFLOW

Background Research For Inspiration And Compare With Similar Work To Come Up With Brief Idea
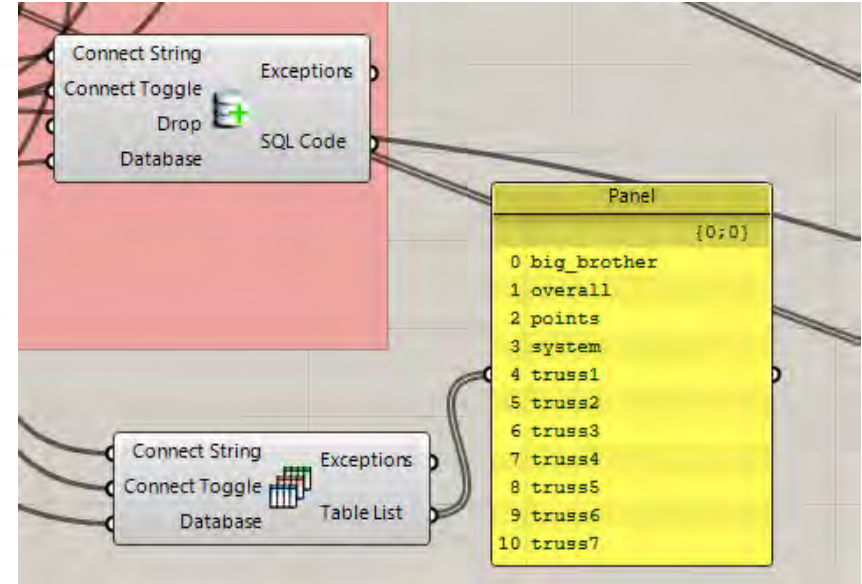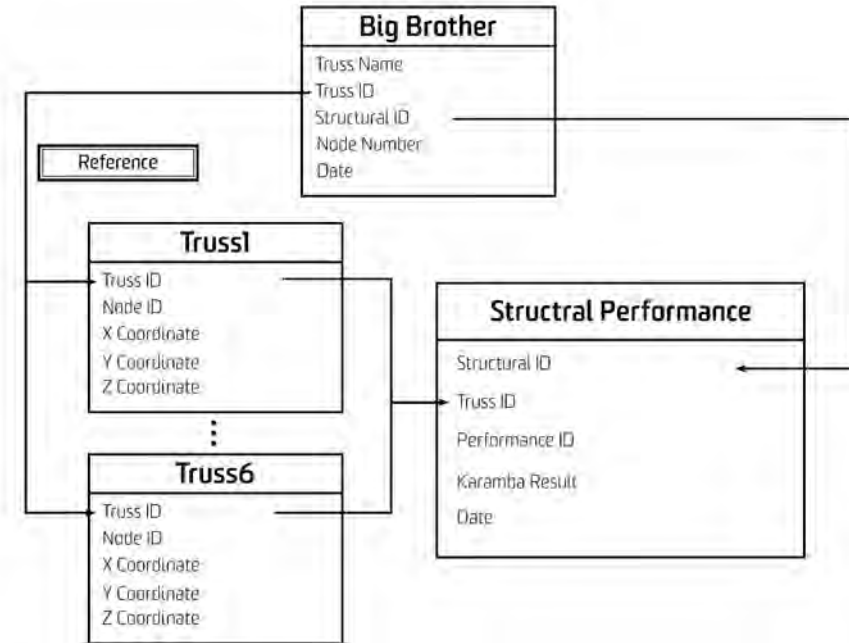
Finalising The Database Creation With Ideally Looking Up Each Elements Inside Each Table

W10

W4

W7

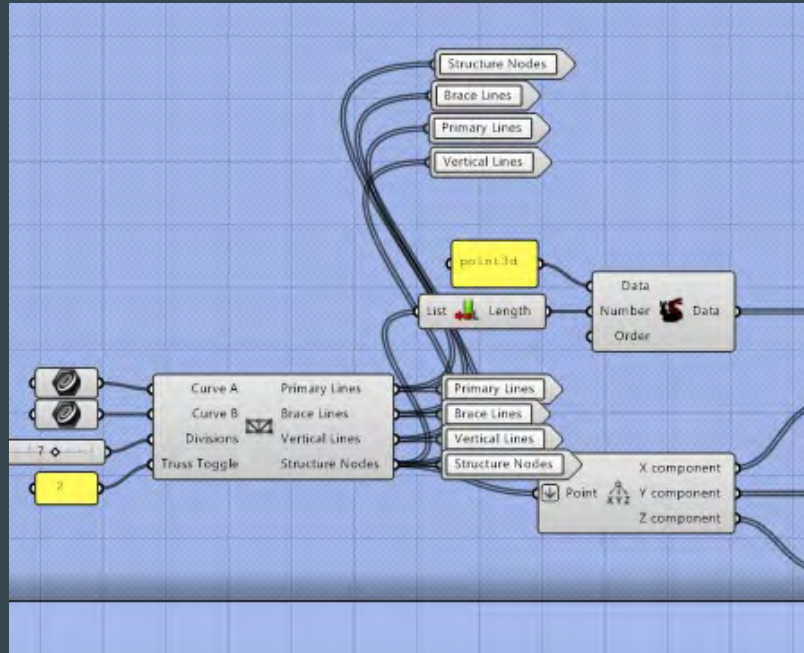Finalising The Project With The Connection Between SQL Database And Genetic Algorithm Processing
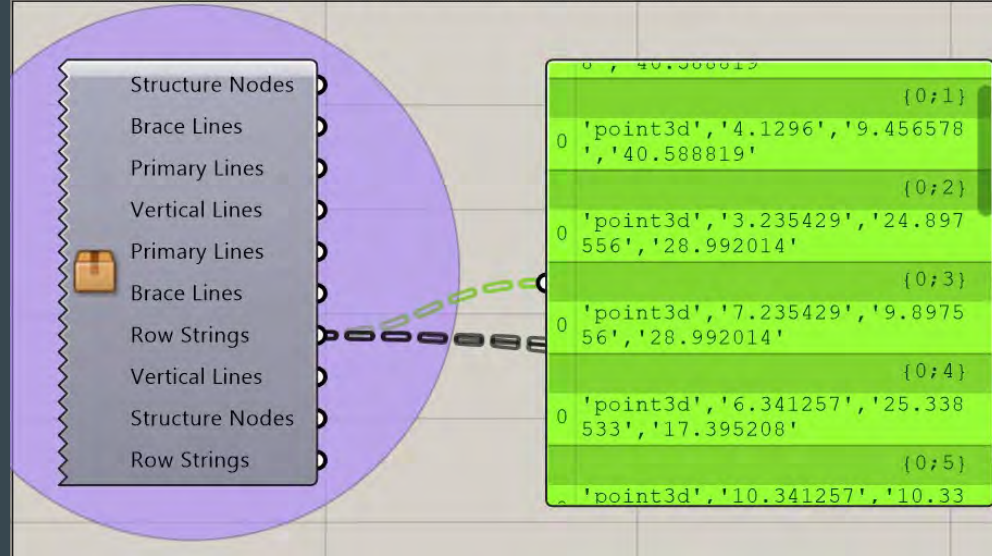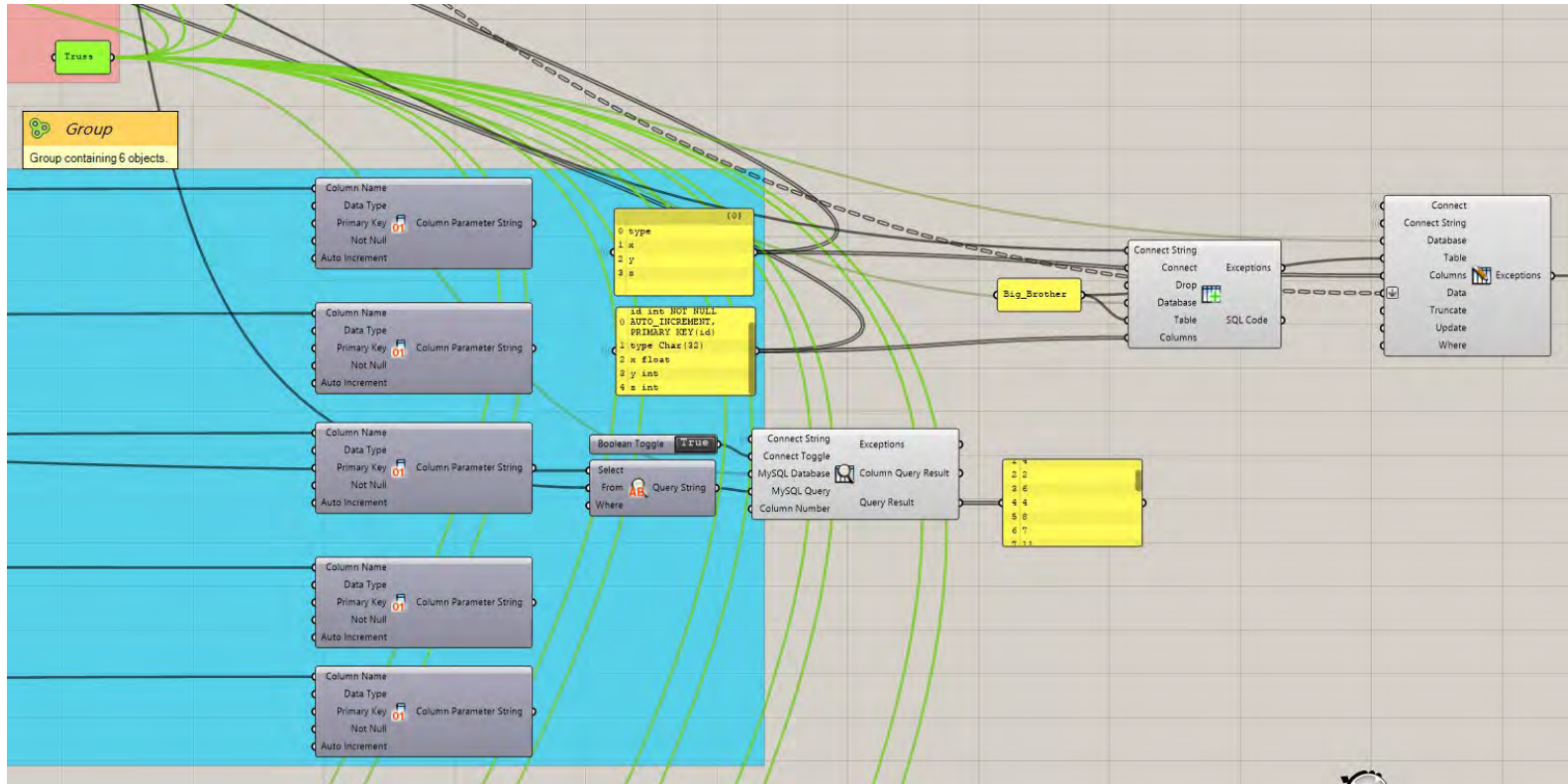
DATABASE CREATION

INFORMATION STORING

ELEMENT SEARCHING

STRUCTURAL PERFORMANCE

GENETIC ALGORITHM PROCESS

RESULT VISUALISATION

RESULT CONCLUSION

- ☐ No Connection Is Build By Slingshot And Galapagos Due To Cross Plugin Limitation

- ☐ The Genetic Algorithm Is Unable To Use The Information From The Database

- ☐ Lack Of Method To Easily Store Information In The Database

- ☐ It Shows The Potential That Genetic Algorithm Brings More Structural Diversity

- ☐ The Setting In The Genetic Algorithm Will Assist To Create Better Structure

EVALUATION

- Better Usage Of Sharing Building Information In Design

- The Result Show How Does Algorithm Assisted Method Could Be Use

- The Generation Seems Simple In This Stage

- Both Database And Algorithm System Need To Further Develop

FURTHER RESEARCHING

- Using python to create both database and genetic function

- More identical information stored in the database

- Easier method to input structural data into the database

- Better algorithm than genetic algorithm or better approach