

UGAHacks Project Log Template

Project Information

Project Title: HPCC Database Management

Team Members: Mustafa Khan, Andrew Shank, Matthew Phanmanee

Tier Level: [Beginner/Intermediate/Advanced]

Project Description:

Directed by the Challenges provided by the HPCC, we learned a new language called the Enterprise Control Language (ECL) and manipulated 3 music-related datasets, which contained metadata such as Artist names, Song Names, and release years. The challenges involve sorting, filtering, and interpreting the data to answer a series of questions provided by HPCC.

Friday

Welcome to UGAHacks __ ! We're excited that you're participating and revving up for an amazing weekend! Today will be short, but we advise you to settle on a project and create a plan to guide you! Already have something in mind? Now's a great time to get started!

Goals:

- Goal 1: Identify project challenge/tracks and determine the prospective tier level
- Goal 2: Set up project repo + log
- Goal 3: Organize and divide/assign tasks for completing the project over the next 2 days

Progress:

(Describe what was accomplished)

Andrew and Mustafa reviewed the various challenges and attended information sessions for first-time hackers and the HPCC challenge. After discussing potential projects, we agreed to work on the HPCC database management challenge. The challenge was already split into 3 parts and we each decided to start work on one database each, and then we would delegate the remaining fine touches. The group agreed to look into the programming language ECL, which would be the language used for the challenge.

Challenges:

1. Challenge 1: Narrowing down project ideas and challenges to compete for
 - Solution (if found): Attending the Opening Session, 1st time Hacker Session, and Various Challenge Information Sessions.
2. Challenge 2: Setting up the environment for the HPCC Challenge
 - Solution (if found): Attending the information session included a walkthrough of setting up the environment in VS code and learning the basics of ECL.

Learning:

(List key concepts or skills learned)

- The outline of how High-Performance Computing Clusters worked
- How to install ECL extensions in VS Code
- Basic Functionality of ECL (sorting and filtering data)

AI Usage (if any): None

Saturday

Saturday is the longest day of the Hackathon! The bulk of your project will get done within today, so set your goals wisely!

Goals:

- Goal 1: Review the syntax of ECL and important functions for the project
- Goal 2: Begin sorting, and filtering the 3 main datasets
- Goal 3: Merge the 3 Datasets together for the Bonus Challenge
- Goal 4: Review ECL examples to better understand the language
- Goal 5: Format final code and review ECL Watch output
- Goal 6: Complete Project Documentation

Progress:

(Describe was accomplished)

On Saturday we made the bulk of our progress. We caught up with our team member Matthew on getting the ECL environment set up and split up the work between all of the team members based on our time available. Using the documentation and resources provided to us by the HPCC sponsors, we accomplished the 4 series of challenges provided. This involved learning a new language called the Enterprise Control Language (ECL) to filter, sort, transform, and interpret 3 different music related datasets. We applied concepts in Big Data and Sorting Algorithms to solve the problems and even managed to make progress and complete several of

the bonus challenges. These datasets were hosted on the cloud by our sponsor and we made use of their tool “ECL Watch” to keep track of the changes made to the datasets by our code. By splitting up the work, we were able to make progress much faster, and help each other out when one of us came across a problem another person was familiar with. We also took advantage of the UGA Hackathon resources and went to workshops and had fun in the ESports competition to unwind.

Challenges:

1. Challenge 1: Learning the syntax for TRANSFORM, PROJECT, and TABLE functions

- Solution (if found): We used some of the walkthroughs provided by HPCC as well as online documentation outlining applications of ECL functions:

https://cdn.hpccsystems.com/install/docs/3_4_0_1/ECLLanguageReference.pdf

<https://hpccsystems.atlassian.net/wiki/spaces/hpcc/pages/178716674/University+of+Georgia+UGAHacksX+2025>

<https://cdn.hpccsystems.com/releases/CE-Candidate-3.10.8/docs/ECLProgrammersGuide-3.10.8-2.pdf>

https://hpccsystems.com/wp-content/uploads/documents/ECLR_EN_US/COUNT.html#:~:text=COUNT

https://ecl.informationbuilders.com/wf/index.jsp?topic=%2Fshell_7703%2Freporting%2FUsingFunctions%2Fsource%2Fmaintainchar5.htm

2. Challenge 2: Visualizing and combing through data

- Solution (if found): We used the HPCC playground to look through data tables

<http://challenge.us-hpccsystems-dev.azure.lnrsq.io:8010/esp/files/index.html#/workunits/W20250209-024216/eclsummary>

3. Challenge 3: Sorting with unique factors (such as the length or number of words in the title)

- Solution (if found): Same as Challenge 1 (we combed through provided resources and documentation)

4. Challenge 4: Editing data to remove duplicates and improperly formatted data

Learning:

(List key concepts or skills learned)

- How to use RECORD structures to outline new datasets
- Creating TRANSFORM functions to transform data from one dataset to another
- Using PROJECT to apply changes to every item in a dataset
- Creating tables using RECORD, cross-tab, and TABLE
- Using TRIM and DUP to clean up data
- Interactions between local desktop, Thor server, and Roxie to access and alter data
- Displaying Data on the HPCC playground

AI Usage (if any):

Tool used: GitHub CoPilot

Purpose: To catch syntax errors, Debug code after failed compilation, and to autocomplete functions (CoPilot did not understand ECL so it was only able to autofill functions previously used in the same document)

How it contributed to learning:

The Copilot helped us focus on which lines of code were causing errors and why they may not align with ECL syntax. Furthermore, the autocomplete for basic and repetitive functions helped us write code faster, although autocompleted lines did require some revisions.

Sunday

Submissions are due at 8AM today!! Fit in your final touches for the project and make sure to check the submission checklist below to ensure you're ready for judging!

Goals:

- Goal 1: Choose and send a representative to present our code for judging

Progress:

(Describe what was accomplished)

Andrew volunteered to lead the presentation to the judges. He prepared to show the code in VS Code and the results with ECL Watch.

AI Usage (if any):

Tool used: Chat GPT

Purpose: Preparing for potential questions raised about our code and what judges may be concerned about.

Submission Checklist

Make sure to submit on the UGAHacks __ [Devpost](#) at 8AM on Sunday!

Project Github Repo
Readme file (summary of project log)
Completed Project Log as PDF
Live Project Site (optional)