

CCPROG1 Term MP Specifications
“GILGAMESH’S MEGA GIL ADVENTURES” [1]

"Enough expository banter! Now we fight like men! And ladies! And ladies who dress like men! For Gilgamesh... it is morphing time!"

– Gilgamesh from Final Fantasy V

You play as Gilgamesh, a warrior lost in the rift who ends up travelling into different worlds. As a weapon collector in search for the legendary weapon “Excalibur”, he aims to travel to different worlds to one day come up with that legendary weapon. Armed with extremely powerful weapons he has collected during his recent travels, he sets off on a journey to other worlds.

However, he realized that in order for him to do this, he needs money (Gil, in the universe he is in) during his travels. He needs money to purchase equipment that he will need during his battles, and more importantly, to buy rare weapons that he sets his eyes on. The only reasonable way he can obtain money is by earning them in an honest manner, and that is through buying and selling goods he purchases from other worlds.

Unfortunately, he does not have much goods to his name, save for his Genji equipment which he can sell at the beginning of his journey for a hefty amount. (Or rather, depending on what the Merchant of the Rift offers him)

However, he realizes that items that are considered as priceless in different worlds are quite common in another world. As a traveler of the rift, he could use this to his advantage to buy low from another world and to sell high in another.

As a matter of fact, Gilgamesh did some research of his own and found out that the following are items that will help him gain a lot of money, so when he travels to different merchants around different worlds, these are the items he will pay attention to.

Goods	Estimated Buy / Sell Price
Phoenix Down	500 – 1,200 Gil
Elixir Essence	1,500 – 2,100 Gil
Platinum Ingot	5,000 – 7,000 Gil
Golden Materia	3,500 – 5,500 Gil
Scarletite	8,000 – 12,000 Gil
Adamantite	15,000 – 30,000 Gil
Dark Matter	40,000 – 70,000 Gil
Trapezohedron	60,000 – 90,000 Gil

As a sneaky way of earning money, the Merchant of the Rift offers Gilgamesh some money to help him start with his adventure, with his Genji Equipment as collateral. Gilgamesh, one who

does not think much before acting hastily agreed, but not before the Merchant of the Rift explains that his debt interest increases by 15% every day!

You must help Gilgamesh earn enough money to pay off his debt and get his Genji equipment back within **30** days.

OBJECTIVES

At the start of the game, Gilgamesh will have 20,000 Gil on hand and a 50,000 Gil debt from the Merchant of the Rift. You will have 30 days to earn enough money to pay off that debt and have money remaining on your hand to win the game.

SPECIFICATIONS

For your Machine Project, you are to simulate such game which will enable the player to play as Gilgamesh and engage in his buy and sell escapades.

In the game, there are 6 shops available. The shop names are as follows:

- Tycoon Meteor's Minerals
- Pulsian Restoratives
- Archadian Luxuries
- Cid's Magical Escapades
- Gaian Gratitudes
- Riches and Minerals of Spira

Gilgamesh should be able to travel through each of these worlds, at the cost of **1 day**. Refer to the following sample screen to provide you with an idea with what should be displayed in the Main Rift screen.

Gilgamesh: Where should my travels take me to?

- [1] Tycoon Meteor's Minerals
- [2] Pulsian Restoratives
- [3] Archadian Luxuries
- [4] Cid's Magical Escapades
- [5] Gaian Gratitudes
- [6] Riches and Minerals of Spira
- [7] Go see the Merchant of the Rift

Day #1
Gil: 20000
Debt: 50000

[Q]uit

Your Choice: _

When entering a shop, the shop's name must be indicated and the player has the option to buy and sell respective items from these shops. In a shop, the user has three options. They may either buy, sell, or leave.

The price of each item falls within a specific range (As specified in Page #1).

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*****
Tycoon Meteor's Minerals
*****

Shopkeeper: Welcome! How may I be of service?

Item                On hand                Price
Phoenix Down        0                    756 G
Elixir Essence      0                    1750 G
Platinum Ingot      0                    6123 G
Golden Materia      0                    4250 G
Scarletite          0                    Sold Out
Adamantite          0                    29234 G
Dark Matter          0                    42387 G
Trapezohedron       0                    61323 G

[B]uy   [S]ell [L]eave

Option:
```

WHEN BUYING AN ITEM: The user selects the item and after the item is selected, the user specifies how much of the item will be bought. The user may buy as many of that item as they wish to do so provided that they can afford it. Their Gil on hand is updated accordingly.

```
*****
Tycoon Meteor's Minerals
*****

Shopkeeper: Buying an item? Which one?

Item                On hand                Price
[1] Phoenix Down    0                    756 G
[2] Elixir Essence  0                    1750 G
[3] Platinum Ingot  0                    6123 G
[4] Golden Materia  0                    4250 G
[5] Scarletite      0                    Sold Out
[6] Adamantite      0                    29234 G
[7] Dark Matter      0                    42387 G
[8] Trapezohedron   0                    61323 G

Day #1
Gil: 20000
Debt: 50000

Option:
```

WHEN SELLING AN ITEM: The user selects the item and after the item is selected, the user specifies how much of the item will be sold. The user may sell as many of that item as they wish to do so provided they have at least that amount on hand. Their Gil on hand is updated accordingly.

SOLD OUT ITEMS: An item has a **30%** chance of being sold out. The buying and selling price of an item varies depending on the price that the shopkeeper decides to impose on it during that day. Also, items that are **sold out cannot be bought or sold**.

Note: The prices of the items and sold out items are determined when Gilgamesh enters a shop and remain the same throughout the day. Prices change once Gilgamesh leaves the shop and returns to the rift. Gilgamesh may also perform as many transactions as he wishes to do so in that shop during the day. (IE: Buy multiple items, sell multiple items, and resell items he accidentally bought)

HOWEVER, since Gilgamesh can travel between different worlds, each shop has a “Specialty” item which buys and sells items at a discounted price. They are as follows:

Shop	Specialty Item	Special Price
Pulsian Restoratives	Phoenix Down	300 – 800 Gil
Pulsian Restoratives	Elixir Essence	1,000 – 1,700 Gil
Archadian Luxuries	Platinum Ingot	4,500 – 6,000 Gil
Cid’s Magical Escapades	Golden Materia	3,000 – 5,000 Gil
Gaian Gratitudes	Scarletite	5,000 – 10,000 Gil
Riches and Minerals of Spira	Adamantite	9,500 – 20,000 Gil
Riches and Minerals of Spira	Dark Matter	22,000 – 50,000 Gil
Tycoon’s Meteor Minerals	Trapezohedron	35,000 – 65,000 Gil

Take note that shops will **never** have their specialty item sold out.

Whenever Gilgamesh decides to leave a shop, the following events occur:

- Gilgamesh returns to the Main Rift Screen
- He loses a day
- Debt increases by 15%

Gilgamesh: Where should my travels take me to?

- [1] Tycoon Meteor’s Minerals
- [2] Pulsian Restoratives
- [3] Archadian Luxuries
- [4] Cid’s Magical Escapades
- [5] Gaian Gratitudes
- [6] Riches and Minerals of Spira
- [7] Go see the Merchant of the Rift

Day #2
Gil: 20000
Debt: 57500

[Q]uit

Your Choice: __

The player may also choose to go and visit the Merchant of the Rift. Here, the player may do any of the following:

- Deposit Gil
- Withdraw Gil deposited

- Pay debt (Completely or partially)
- Ask for additional loan

Merchant of the Rift: Are you ready to pay your debt?

- [1] Deposit Gil
- [2] Withdraw Gil
- [3] Pay off Debt
- [4] Ask for additional loan
- [5] Leave

Day #2
Gil: 20000
Debt: 57500

Your Choice: _

Initially, Gilgamesh has **0** Gil deposited. The user may choose to deposit or withdraw Gil from the Merchant of the Rift. Whenever Gilgamesh chooses to deposit Gil, it is subtracted from his Gil on hand and added to his Gil Deposited. Whenever Gilgamesh chooses to withdraw from his Gil deposited, it is subtracted from his Gil deposited but added to his Gil on hand. Gilgamesh's money deposited increases by **10%** each day.

Players may also choose to pay off the debt or ask for an additional loan. When Gilgamesh decides to pay off his debt, he may choose to pay all of it or partially (The amount is subtracted from his total debt accumulated) and he may choose to borrow more Gil (Amount is added both to his current Gil on hand and Debt). **If the player manages to pay off Gilgamesh's entire debt, the game continues allowing them to earn more Gil until they decide to quit or complete 30 days of transactions.**

Leaving and going to the Merchant of the Rift **does not** cost a day.

END GAME MECHANICS

The game ends when the player either:

- 1.) Quits the game or
- 2.) Completes 30 days of transactions.

Varying messages must be displayed at the game to evaluate the player's performance. Suitable win and lose messages must be taken into consideration depending whether Gilgamesh managed to pay off his debt completely and earn money or not. (The designers must design appropriate end game messages at the end)

END OF THE GAME!

Total Gil Earned: 20000 G
Debt Remaining: 57500 G

Total Profit: -37500 G

Merchant of the Rift: REALLY? YOU COULDN'T EVEN EARN ENOUGH TO BUY AN EXCALIPOOR!

You have lost the game!

Play Again? [Y]es [N]o _

The game is considered won if Gilgamesh pays off his entire debt and comes away with Gil at the end.

AFTER THE END: The game should give the user the option to start a new game or not. The application should terminate in the end if the user decides not to start a new game.

MODULES

Your game should have the following modules:

1.) Introduction Screen

The Menu screen should enable the user to select whether they would want to start a new game or to quit the game.

2.) Main Menu screen (Main Rift)

This is the Main Rift, where Gilgamesh chooses to go.

3.) Shop screen

Here, the user must have access to either:

- a. Buying an item
- b. Selling an item

Item prices and the items the user has must be displayed correctly in all the shops. Corresponding shop titles must also be displayed

4.) Merchant of the Rift

Here, users should be able to:

- a. Deposit Gil
- b. Withdraw Gil
- c. Pay of Debt
- d. Ask for Loan

Gil Deposited must be recorded, along with the current Gil and debt on hand.

"Hmph! I've fought worse!" – Gilgamesh from Final Fantasy XII

MAIN REQUIREMENTS:

- 1.) Students must implement the following project in C
- 2.) Lessons discussed during COMPRO1 should be applied in creating this project

- 3.) Students must create at least 3 functions (excluding the main and functions used to draw the user interface). These functions must be called properly.
- 4.) No global variables allowed. You must find a way to get other functions to communicate with each other by passing the correct parameters / pointers.
- 5.) **break** is only allowed in switch statements and not in loops. At the same time, you are not allowed to use **goto** and **continue**.
- 6.) Do not forget to include internal documentation (comments). At the very least, there is an introductory comment and a comment before every function.
- 7.) You may implement statements and functions not taught in class (as long as they comply with the requirements above). Using libraries (IE: Allegro, DirectX) and advanced topics (arrays, strings, structures) is permitted as long as they compile in the G302 computer laboratories. Note that doing such may not necessarily merit additional points.

BONUS POINTS:

A maximum of 15 points may be given for additional features not included in the specifications (IE: Random battles, Background Music entitled "Clash on The Big Bridge" playing during the game, Random Events of losing items / Gil, Inventory limit), etc. Additional points given will be subject to the instructor's evaluation based on the correctness in implementation and the impact to the game play.

Important Points to Remember:

1. The implementation will require you to use C to be compiled, ran, and tested in the console using gcc or through Dev C++.
2. You are required to create at least 3 functions (excluding the main() function and those that deal with the interface / screen design) and use functions. Create and use functions wherever applicable. Make sure to use conditional statements and iterative statements appropriately. 'No brute force solution. Goto label, exit, break (except in switch), global variables, are not allowed.
3. Your program must have some mechanism to properly exit the program.
4. The above description of the program is the basic requirement. A maximum of 10 points will be given as bonus. Use of colors may not necessarily incur bonus points. Also, it should be noted that bonus points can only be given if all the basic requirements are completely met (no errors).
5. to include internal documentation (comments). At the very least, there is an introductory comment and a comment before every function.
6. Statements and functions not taught in class can be used in the implementation. However, these are left for the student to learn on their own.
7. Submission of the project will be done over canvas.
8. Any instruction not followed will incur deductions.
9. This is an individual project. Copying other people's work and/or working in collaboration is not allowed.
10. Your programs will be checked with an automatic script that will analyze similarities of your code with another submission and likewise play a run through of your game while accessing all modules, so make sure that you follow the input specifications to the dot. All errors in your code will then be detected whenever the script fails to perform a particular action.

“That was merely a test of your strength, mortals! A prelude if you will! The real contest begins now!”

- Gilgamesh from FFXII