1. **Maintenance Team**
   1. **Team Name:**

Outsourced

* 1. **Team Members and Emails:**

Tod Jones jonesto@uwplatt.edu

Vince Seely seelyv@uwplatt.edu

Dakota Methvin methvind@uwplatt.edu

1. **Maintenance Project**
   1. **Background**

This project began as a catch-all bot/assistant for the Discord communications platform. It was initially committed to Github in August of 2017. While some files persisted from a previous, non-version-controlled project, the majority of current code was implemented after this first commit. Since then, more than 1800 commits have been made and the project receives an average of 8 per week.

As the project grew, more functionality was added, sometimes at the cost of complexity. Currently, the project has 11 feature-extending/adding modules to the core system. Locally hosted database services and custom exception handling have also been added. While customizable, these features have driven the need for refactoring past reasonable levels and the project is a tangle of high-complexity methods, bloated classes, and excessive dependencies.

* 1. **Potential Maintenance Tasks**
     1. **Corrective**

CO1. Dependencies on .NET Standard have the possibilities to fail on non-Windows platforms. See potential task PV1 for more information.

CO2. Locally-implemented database has no access control specifications.

* + 1. **Adaptive**

AD1. Isolating the project in a Docker container would provide additional hosting options, would increase deployment options (cloud services instead of local VMs), and would allow in-place upgrades at an accelerated pace.

AD2. New GDPR compliance standards are likely unmet, and substantial work would be required to bring the data-collection aspects of this project up to legal specification for deployment in the EU.

AD3. The current local database solution relies on npgsql (an external Clang-to-SQL solution). Another SQL-interaction option (esp. one provided by .NET Core) could reduce complexity and provide more reliable execution.

* + 1. **Perfective**

PF1. Add access to the Ubisoft-provided *Rainbow Six Siege* player statistics API and appropriate command functionality in the Discord application.

PF2. Add Right-to-be-Forgotten options as required by GDPR. See potential task AD2 for more information.

PF3. Migrating the database from a local solution to a server-based solution could increase performance (by accessing more optimized services) at the potentially-lower cost of latency.

* + 1. **Preventive**

PV1. *Texas Hold ‘Em* and *Giphy.NET* extensions are running on .NET Standard while the rest of the project utilizes .NET Core. Standardizing this dependency could result in cleaner, more maintainable code.

PV2. Certain core files contain long methods, excessive loops, and high complexity paths. These could be refactored to produce cleaner, more reliable code.

PV3. The project’s testing suite is insufficient. Adding unit and integration tests would streamline refactoring and feature additions.

* 1. **Sources and Documentations**
     1. **List of System Documentations**

\the-godfather\

LICENSE

README.md

the-godfather\Database\

README.md

\the-godfather\Documentation\

README.md

\the-godfather\Documentation\Parts\

Administration.md

Chickens.md

Currency.md

Games.md

Miscellaneous.md

Music.md

Owner.md

Polls.md

Reations.md

Searches.md

SWAT.md

Uncategorized.md

\the-godfather\Documentation\CS3860 Deliverables\

Maintenance Plan – Group Report.dox

Maintenance Plan.docx

Project Proposal – Group Report.docx

Project Proposal.docx

* + 1. **List of Source Files**

TheGodfather.sln

TheGodfather/Common/AsyncExecutionManager.cs

TheGodfather/Common/AsyncExecutor.cs

TheGodfather/Common/Attributes/AsyncEventListenerAttribute.cs

TheGodfather/Common/Attributes/ModuleAttribute.cs

TheGodfather/Common/Attributes/NotBlockedAttribute.cs

TheGodfather/Common/Attributes/RequireOwnerOrPermissionsAttribute.cs

TheGodfather/Common/Attributes/RequirePrivilegedUserAttribute.cs

TheGodfather/Common/Attributes/UsageExamplesAttribute.cs

TheGodfather/Common/Attributes/UsesInteractivityAttribute.cs

TheGodfather/Common/BotConfig.cs

TheGodfather/Common/CachedGuildConfig.cs

TheGodfather/Common/ChannelEvent.cs

TheGodfather/Common/Collections/ConcurrentHashSet.cs

TheGodfather/Common/Converters/CustomActivityTypeConverter.cs

TheGodfather/Common/Converters/CustomBoolConverter.cs

TheGodfather/Common/Converters/CustomIPAddressConverter.cs

TheGodfather/Common/Converters/CustomIpFormatConverter.cs

TheGodfather/Common/Converters/CustomPunishmentActionTypeConverter.cs

TheGodfather/Common/Converters/CustomTimeWindowConverter.cs

TheGodfather/Common/CustomHelpFormatter.cs

TheGodfather/Common/CustomIpFormat.cs

TheGodfather/Common/DiscordEventType.cs

TheGodfather/Common/GFRandom.cs

TheGodfather/Common/Logger.cs

TheGodfather/Common/SavedTaskExecutor.cs

TheGodfather/Common/SavedTaskInfo.cs

TheGodfather/Common/StaticDiscordEmoji.cs

TheGodfather/EventListeners/Common/LinkfilterMatch.cs

TheGodfather/EventListeners/Common/LinkfilterMatcherCollection.cs

TheGodfather/EventListeners/Listeners.Channel.cs

TheGodfather/EventListeners/Listeners.Client.cs

TheGodfather/EventListeners/Listeners.Command.cs

TheGodfather/EventListeners/Listeners.Guild.cs

TheGodfather/EventListeners/Listeners.Linkfilter.cs

TheGodfather/EventListeners/Listeners.Members.cs

TheGodfather/EventListeners/Listeners.Message.cs

TheGodfather/EventListeners/Listeners.cs

TheGodfather/Exceptions/CommandFailedException.cs

TheGodfather/Exceptions/ConcurrentOperationException.cs

TheGodfather/Exceptions/DatabaseOperationException.cs

TheGodfather/Exceptions/InvalidCommandUsageException.cs

TheGodfather/Exceptions/ServiceDisabledException.cs

TheGodfather/Extensions/CNextExtensions.cs

TheGodfather/Extensions/CommandContextExtensions.cs

TheGodfather/Extensions/DateTimeExtensions.cs

TheGodfather/Extensions/DiscordChannelExtensions.cs

TheGodfather/Extensions/DiscordClientExtensions.cs

TheGodfather/Extensions/DiscordGuildExtensions.cs

TheGodfather/Extensions/EnumerableExtensions.cs

TheGodfather/Extensions/HoldemExtensions.cs

TheGodfather/Extensions/InteractivityExtensions.cs

TheGodfather/Extensions/KeyValuePairExtensions.cs

TheGodfather/Extensions/StringExtensions.cs

TheGodfather/Modules/Administration/AutomaticRolesModule.cs

TheGodfather/Modules/Administration/ChannelModule.cs

TheGodfather/Modules/Administration/Common/ExemptedEntity.cs

TheGodfather/Modules/Administration/Common/Filter.cs

TheGodfather/Modules/Administration/Common/PunishmentActionType.cs

TheGodfather/Modules/Administration/Common/UserRatelimitInfo.cs

TheGodfather/Modules/Administration/EmojiModule.cs

TheGodfather/Modules/Administration/Extensions/DBService.Filters.cs

TheGodfather/Modules/Administration/Extensions/DBService.SpecialRoles.cs

TheGodfather/Modules/Administration/FilterModule.cs

TheGodfather/Modules/Administration/GuildModule.Config.Antiflood.cs

TheGodfather/Modules/Administration/GuildModule.Config.Linkfilter.cs

TheGodfather/Modules/Administration/GuildModule.Config.Logging.cs

TheGodfather/Modules/Administration/GuildModule.Config.Ratelimit.cs

TheGodfather/Modules/Administration/GuildModule.Config.cs

TheGodfather/Modules/Administration/GuildModule.cs

TheGodfather/Modules/Administration/MessageModule.Delete.cs

TheGodfather/Modules/Administration/MessageModule.cs

TheGodfather/Modules/Administration/RoleModule.cs

TheGodfather/Modules/Administration/SelfAssignableRolesModule.cs

TheGodfather/Modules/Administration/Services/AntifloodService.cs

TheGodfather/Modules/Administration/Services/ProtectionService.cs

TheGodfather/Modules/Administration/Services/RatelimitService.cs

TheGodfather/Modules/Administration/UserModule.cs

TheGodfather/Modules/Chickens/ChickenModule.Ambush.cs

TheGodfather/Modules/Chickens/ChickenModule.Buy.cs

TheGodfather/Modules/Chickens/ChickenModule.Train.cs

TheGodfather/Modules/Chickens/ChickenModule.Upgrades.cs

TheGodfather/Modules/Chickens/ChickenModule.War.cs

TheGodfather/Modules/Chickens/ChickenModule.cs

TheGodfather/Modules/Chickens/Common/Chicken.cs

TheGodfather/Modules/Chickens/Common/ChickenStats.cs

TheGodfather/Modules/Chickens/Common/ChickenUpgrade.cs

TheGodfather/Modules/Chickens/Common/ChickenWar.cs

TheGodfather/Modules/Chickens/Extensions/DBService.Chickens.cs

TheGodfather/Modules/Currency/BankModule.cs

TheGodfather/Modules/Currency/CasinoModule.Blackjack.cs

TheGodfather/Modules/Currency/CasinoModule.Holdem.cs

TheGodfather/Modules/Currency/CasinoModule.Lottery.cs

TheGodfather/Modules/Currency/CasinoModule.cs

TheGodfather/Modules/Currency/Common/BlackjackGame.cs

TheGodfather/Modules/Currency/Common/HoldemGame.cs

TheGodfather/Modules/Currency/Common/LotteryGame.cs

TheGodfather/Modules/Currency/Common/SlotMachine.cs

TheGodfather/Modules/Currency/Common/WheelOfFortune.cs

TheGodfather/Modules/Currency/Extensions/DBService.Bank.cs

TheGodfather/Modules/Currency/GambleModule.cs

TheGodfather/Modules/Games/CardsModule.cs

TheGodfather/Modules/Games/Common/AnimalRace.cs

TheGodfather/Modules/Games/Common/BoardGame.cs

TheGodfather/Modules/Games/Common/CapitalsQuiz.cs

TheGodfather/Modules/Games/Common/CaroGame.cs

TheGodfather/Modules/Games/Common/ConnectFourGame.cs

TheGodfather/Modules/Games/Common/CountriesQuiz.cs

TheGodfather/Modules/Games/Common/DuelGame.cs

TheGodfather/Modules/Games/Common/GameStats.cs

TheGodfather/Modules/Games/Common/HangmanGame.cs

TheGodfather/Modules/Games/Common/NumberRace.cs

TheGodfather/Modules/Games/Common/OthelloGame.cs

TheGodfather/Modules/Games/Common/Quiz.cs

TheGodfather/Modules/Games/Common/QuizData.cs

TheGodfather/Modules/Games/Common/RussianRouletteGame.cs

TheGodfather/Modules/Games/Common/TicTacToeGame.cs

TheGodfather/Modules/Games/Common/TypingRace.cs

TheGodfather/Modules/Games/Extensions/DBService.Stats.cs

TheGodfather/Modules/Games/GamesModule.AnimalRace.cs

TheGodfather/Modules/Games/GamesModule.Caro.cs

TheGodfather/Modules/Games/GamesModule.ConnectFour.cs

TheGodfather/Modules/Games/GamesModule.Duel.cs

TheGodfather/Modules/Games/GamesModule.Hangman.cs

TheGodfather/Modules/Games/GamesModule.NumberRace.cs

TheGodfather/Modules/Games/GamesModule.Othello.cs

TheGodfather/Modules/Games/GamesModule.Quiz.cs

TheGodfather/Modules/Games/GamesModule.RussianRoulette.cs

TheGodfather/Modules/Games/GamesModule.TicTacToe.cs

TheGodfather/Modules/Games/GamesModule.TypingRace.cs

TheGodfather/Modules/Games/GamesModule.cs

TheGodfather/Modules/Games/Services/CardDecksService.cs

TheGodfather/Modules/Games/Services/QuizService.cs

TheGodfather/Modules/Misc/BirthdayModule.cs

TheGodfather/Modules/Misc/Common/Birthday.cs

TheGodfather/Modules/Misc/Common/EightBall.cs

TheGodfather/Modules/Misc/Common/PurchasableItem.cs

TheGodfather/Modules/Misc/Extensions/DBService.Birthdays.cs

TheGodfather/Modules/Misc/Extensions/DBService.Insults.cs

TheGodfather/Modules/Misc/Extensions/DBService.Memes.cs

TheGodfather/Modules/Misc/Extensions/DBService.Ranks.cs

TheGodfather/Modules/Misc/Extensions/DBService.Shop.cs

TheGodfather/Modules/Misc/InsultModule.cs

TheGodfather/Modules/Misc/MemeModule.cs

TheGodfather/Modules/Misc/MiscModule.cs

TheGodfather/Modules/Misc/RandomModule.cs

TheGodfather/Modules/Misc/RanksModule.cs

TheGodfather/Modules/Misc/RemindersModule.cs

TheGodfather/Modules/Misc/Services/MemeGenService.cs

TheGodfather/Modules/Misc/ShopModule.cs

TheGodfather/Modules/Music/Common/MusicPlayer.cs

TheGodfather/Modules/Music/Common/SongInfo.cs

TheGodfather/Modules/Music/MusicModule.Play.cs

TheGodfather/Modules/Music/MusicModule.cs

TheGodfather/Modules/Owner/Common/EvaluationEnvironment.cs

TheGodfather/Modules/Owner/Extensions/DBService.Blocked.cs

TheGodfather/Modules/Owner/Extensions/DBService.Privileges.cs

TheGodfather/Modules/Owner/Extensions/DBService.Statuses.cs

TheGodfather/Modules/Owner/OwnerModule.BlockedChannels.cs

TheGodfather/Modules/Owner/OwnerModule.BlockedUsers.cs

TheGodfather/Modules/Owner/OwnerModule.Commands.cs

TheGodfather/Modules/Owner/OwnerModule.PrivilegedUsers.cs

TheGodfather/Modules/Owner/OwnerModule.Statuses.cs

TheGodfather/Modules/Owner/OwnerModule.cs

TheGodfather/Modules/Polls/Common/Poll.cs

TheGodfather/Modules/Polls/Common/ReactionsPoll.cs

TheGodfather/Modules/Polls/PollModule.cs

TheGodfather/Modules/Polls/ReactionsPollModule.cs

TheGodfather/Modules/Polls/Services/PollService.cs

TheGodfather/Modules/Polls/VotingModule.cs

TheGodfather/Modules/Reactions/Common/EmojiReaction.cs

TheGodfather/Modules/Reactions/Common/Reaction.cs

TheGodfather/Modules/Reactions/Common/TextReaction.cs

TheGodfather/Modules/Reactions/EmojiReactionsModule.cs

TheGodfather/Modules/Reactions/Extensions/DBService.Reactions.cs

TheGodfather/Modules/Reactions/TextReactionsModule.cs

TheGodfather/Modules/Search/Common/FeedEntry.cs

TheGodfather/Modules/Search/Common/GeolocationData.cs

TheGodfather/Modules/Search/Common/GoodreadsData.cs

TheGodfather/Modules/Search/Common/OMDbData.cs

TheGodfather/Modules/Search/Common/QuoteData.cs

TheGodfather/Modules/Search/Common/UrbanDictData.cs

TheGodfather/Modules/Search/Common/WeatherData.cs

TheGodfather/Modules/Search/Common/XkcdComic.cs

TheGodfather/Modules/Search/Extensions/DBService.Feeds.cs

TheGodfather/Modules/Search/GiphyModule.cs

TheGodfather/Modules/Search/GoodreadsModule.cs

TheGodfather/Modules/Search/ImgurModule.cs

TheGodfather/Modules/Search/JokesModule.cs

TheGodfather/Modules/Search/OMDbModule.cs

TheGodfather/Modules/Search/RSSModule.cs

TheGodfather/Modules/Search/RedditModule.cs

TheGodfather/Modules/Search/SearchModule.cs

TheGodfather/Modules/Search/Services/GiphyService.cs

TheGodfather/Modules/Search/Services/GoodreadsService.cs

TheGodfather/Modules/Search/Services/ImgurService.cs

TheGodfather/Modules/Search/Services/IpGeolocationService.cs

TheGodfather/Modules/Search/Services/JokesService.cs

TheGodfather/Modules/Search/Services/OMDbService.cs

TheGodfather/Modules/Search/Services/PetImagesService.cs

TheGodfather/Modules/Search/Services/QuoteService.cs

TheGodfather/Modules/Search/Services/RSSService.cs

TheGodfather/Modules/Search/Services/SteamService.cs

TheGodfather/Modules/Search/Services/UrbanDictService.cs

TheGodfather/Modules/Search/Services/WeatherService.cs

TheGodfather/Modules/Search/Services/XkcdService.cs

TheGodfather/Modules/Search/Services/YtService.cs

TheGodfather/Modules/Search/SteamModule.cs

TheGodfather/Modules/Search/UrbanDictModule.cs

TheGodfather/Modules/Search/WeatherModule.cs

TheGodfather/Modules/Search/XkcdModule.cs

TheGodfather/Modules/Search/YoutubeModule.cs

TheGodfather/Modules/Swat/Common/SwatDatabaseEntry.cs

TheGodfather/Modules/Swat/Common/SwatServer.cs

TheGodfather/Modules/Swat/Common/SwatServerInfo.cs

TheGodfather/Modules/Swat/Extensions/DBService.Swat.cs

TheGodfather/Modules/Swat/Services/SwatSpaceCheckService.cs

TheGodfather/Modules/Swat/SwatModule.Banlist.cs

TheGodfather/Modules/Swat/SwatModule.Database.cs

TheGodfather/Modules/Swat/SwatModule.Search.cs

TheGodfather/Modules/Swat/SwatModule.Servers.cs

TheGodfather/Modules/Swat/SwatModule.cs

TheGodfather/Modules/TheGodfatherModule.cs

TheGodfather/Modules/TheGodfatherServiceModule.cs

TheGodfather/Properties/Resources.Designer.cs

TheGodfather/Resources/linkfilter/booters.json

TheGodfather/Resources/linkfilter/disturbing\_sites.json

TheGodfather/Resources/linkfilter/ip\_loggers.json

TheGodfather/Resources/linkfilter/url\_shorteners.json

TheGodfather/Resources/quiz-capitals.json

TheGodfather/Services/Common/DatabaseConfig.cs

TheGodfather/Services/DBService.GuildConfig.cs

TheGodfather/Services/DBService.SavedTasks.cs

TheGodfather/Services/DBService.cs

TheGodfather/Services/ITheGodfatherService.cs

TheGodfather/Services/TheGodfatherHttpService.cs

TheGodfather/SharedData.cs

TheGodfather/TheGodfather.cs

TheGodfather/TheGodfather.csproj

TheGodfather/TheGodfatherShard.cs

TheGodfatherTests/Modules/Games/Services/QuizServiceTests.cs

TheGodfatherTests/Modules/Misc/Services/MemeGenServiceTests.cs

TheGodfatherTests/Modules/Search/Services/GiphyServiceTests.cs

TheGodfatherTests/Modules/Search/Services/ImgurServiceTests.cs

TheGodfatherTests/Modules/Search/Services/IpGeolocationServiceTests.cs

TheGodfatherTests/Modules/Search/Services/JokesServiceTests.cs

TheGodfatherTests/Modules/Search/Services/OMDbServiceTests.cs

TheGodfatherTests/Modules/Search/Services/PetImagesServiceTests.cs

TheGodfatherTests/Modules/Search/Services/QuoteServiceTests.cs

TheGodfatherTests/Modules/Search/Services/RSSServiceTests.cs

TheGodfatherTests/Modules/Search/Services/UrbanDictServiceTests.cs

TheGodfatherTests/Modules/Search/Services/WeatherServiceTests.cs

TheGodfatherTests/Modules/Search/Services/XkcdServiceTests.cs

TheGodfatherTests/Modules/Search/Services/YtServiceTests.cs

TheGodfatherTests/TheGodfatherTests.csproj

* + 1. **List of Other Information**

We are in the process of assembling a wiki for the project.