Issues/optimization:

~~-crashes when swapping player to other team~~ edit: seems like this got fixed at some point

-should try to fix mccree being able to interrupt his ult by firing. not sure if his voice line would still play if I just stunned or froze him shortly afterwards. Then again maybe it's okay to leave it as is?

-~~if mccree cancels his ult manually, the description text won't be removed, also seems to happen if he just doesn't fire. Though I'll probably make a new way of showing the ult descriptions in the future with a manual button press. edit: apparently the code currently checks for if the enemy players have ulting enemy mccree set when disabling the ult, so if enemy team is empty then the ult text will never be removed, will modify~~

-~~multiple mccrees per team don't apply damage correctly as the code is only designed for one per team~~ edit: probably fixed now, because I changed the damage to be applied on mccree’s side

~~-roadhog and maybe some other stuns can cancel d.vas freezing when choosing from menu~~ edit: should maybe be fixed now?? added temporary phased out status slightly before freezing into the menu although in testing it seemed like there was some very brief window where a roadhog was able to hook you anyway, but I couldn't reproduce it.

-~~checking for ability 2 cooldown always returns 0 with dva which is why the cooldown for her microrockets isn't changed, could potentially use the hard value from the wiki for the cooldown and then calculate based on that and also do the cooldown reduction a specific number of seconds after she started firing the rockets, but might have to set some extra variables for that or use d.vas array variable, or maybe the devs will fix it eventually who knows~~ EDIT: just made it timer-based.

-~~sigma code sometimes leaves allies flying, also several sigma rules related to him setting gravity on players executing even when there hasn't been any sigma playing, some of sombra’s rules run unnecessarily as well~~ edit: made improvements to Sigma’s ult and it seems more consistent now. I’m not sure, but I think it shouldn’t run unnecessarily now either.

~~-sombra's time stop doesn't seem to work on players if they spawn during the time stop~~ edit: setting is alive as a condition seems to have fixed this.

~~-~~could maybe remove some unnecessary variables from use like ones used for timers and such edit: made an ult timer variable that is used by multiple heroes.

-soldier can use multiple killstreaks at once if they're unlocked, also can use other streaks when in ac-130 for example

-~~seems like sometimes the number of kills counted by the game for soldier's streak is more than the amount counted by the code?~~ edit: Might have been because I was only counting final blows and not eliminations before

-nuke increases respawn time for bots? and maybe players?

-sometimes zarya's graviton effect doesn't get removed after ult ends and just gets placed in the middle of the map

~~-torbturret disappears when AI bots are added to the same team, dunno if the same would happen with dummy bots and players, edit: seems like the torb maybe just gets replaced on his slot instead of being moved up a slot. Probably should have to specify a slot that is not used by players or AI.~~ Edit: addressed this one

-~~winston's wall stun seems to work most of the time, but sometimes it doesn't, seems like the J variable might not be set correctly sometimes when winston deals damage?~~ Edit: made some changes so it’s more consistent now though could still be improved

-for some reason with zarya the enemies are now flying in long circles around the grav when I reworked the code even though functionally I don't see how it should be any different from before

-sometimes junker queen doesn’t get teleported back from arena. Also gravity doesn’t get applied correctly sometimes

~~-seems like player dealt healing only works on players who actually have lost health now so Mecy can’t give life to full health players and I suppose this would break Ana’s ult too.~~ Edit: did some reworks to Ana and Mercy to account for this.

~~-sigma’s gravity changes sometimes persist despite sigma not being near. Seemed to break one time when I tried swapping him to spectators and back, but then the same didn’t happen again later.~~ Edit: reworked Sigma code and it should be more consistent now

~~-Sometimes it seems like the variables are changed, but the gravities don’t get applied in time before the variable changes again. Probably should try to set the gravities at the same time as the variables are changed, tried a solution for that but it seemed kinda buggy and there was a ton of arrays to go through which may have caused some issues. Maybe could just be simplified by removing the whole currentgravities and speeds thing~~ Edit: reworked Sigma code and it should be more consistent now

-genji’s ult’s damage over time seems to interrupt if he uses ultimate again before the last damage over time has finished and the enemies are still stunned

~~-should maybe make sure that allies can’t heal the nanoboosted player to full in between ana applying the damage to them and healing them with ult. From what I could tell with AI mercy’s it seemed like it worked even if their healing beams were active but not a 100% sure~~ edit: added a temporary healing block when Ana nanoboosts

-symmetra’s portals effects disappear when swapping team, but the portal positions can still teleport players. Could potentially make Sym’s code trigger from her side so that once she leaves she won’t teleport players anymore. Or figure out some way to reset things

-multiple junker queens ulting kinda bugs out in several ways right now though it usually doesn’t do anything gamebreaking at least.

-if junker queen kills all the enemies with the ultimate before they enter the arena and the arena transition is interrupted, then the next time she uses the ultimate she will teleport instantly edit: I think I tried fixing this, but not sure it was successful

-mercy can resurrect enemies with vanilla mechanics when they are in junker’s arena, but the code doesn’t really account for that and treats them as dead anyway

-should maybe make sure that usingcustomult is reset before the player switches to another hero, because it being turned on can trigger some rules. Could maybe also set Event Player.B as a condition for using ultimates as that should be set after the reset subroutines are executed. Edit: Tested this by switching from zarya to mei in the middle of her ult, but I didn’t see Mei’s virus spread rule being triggered in the inspector even though usingcustomult was active before the reset. It has a wait in the beginning, but it has ignore condition so it should trigger regardless but it didn’t so maybe things are safe??

-added some stuff in the stopusingcustomult subroutine, hopefully it still works fine with all heroes and doesn’t break anything

-somehow one time when playing as sombra got some kind of random blue hud text with a number that increased every time she used virus ult. Dunno what that was.

-somehow for a reinhardt ai player the createmenu became true even though that seems pretty much impossible as D.Va is the only hero that does anything with the menu. I think they triggered some Ana rules too. Also their ultimate buffs got stuck which could have been due to an interaction with Mei’s time stop or they’re just bugged.

-sometimes it seems like reinhardt’s ult ends at the 1 second mark instead of zero. Edit: Could maybe put event player.y =< 0 in his wait until? it might be more accurate than how it works now

~~-one time rein’s ult just didn’t trigger when jumping from a bridge. Edit: might be fixed now, because I added a more efficient way of blocking the vanilla ultimates~~ edit: not fixed, the changes I did probably only fixed the issue for the heroes that don’t use their vanilla ultimates at all

~~-time stop freeze doesn’t work if the player has immunity to freeze. Like orisa’s tank mode. Maybe having temporary immunity is fine, also I just set the projectile speed to be zero during time stop so orisa can’t shoot very effectively even if she can move around during the time stop. Maybe do a looped check of whether the target player has frozen status.~~ Edit: added

-sojourn’s beam only works on one enemy at a time, because the ray cast can’t go through players?

-one time when playing as Pharah in FFA started match she got higher gravity than usual for some reason even though current gravities value seemed to be normal

~~-sometimes the virus effect will persist on players after they die, but they usually don’t take damage~~ edit: The above seems to be fixed now, but sometimes there’s a situation where the virus variable is set, but the virus effects aren’t being applied, it seems like sometimes the effects of the virus get reset, but then the virus variable doesn’t get reset or it gets applied again too quickly and the wait timer doesn’t get to stop on the event that creates the virus effects though it’s supposed to have an abort when false so you would think that it would get reset as soon as the virus was reset so idk tbh. Doesn’t seem like a huge issue though, because it seems to usually resolve by itself after a little while, it’s like a temporary immunity to the virus which I guess could make a bit of sense even gameplay-wise

Edit: Added an extra condition to the virus applying rule that seems to have fixed the above issue.

~~-winston’s wall stun seems to only apply to one player at a time when hitting multiple players. It only seems to consider one victim in the rule.~~ Edit:

~~-zen’s possession seemed to get stuck if the player re-possessed a player right before the timer stops~~ edit: fixed

-torb player can’t see turret torb’s health in free for all

~~-ac-130 wrecking ball seemingly can’t spawn with a full lobby even though other dummy bots can~~ edit: did some testing and sometimes it works and sometimes doesn’t???

-somehow choosemenu events like choosemenufinalizechoice at least sometimes might trigger according to inspector even though the variables should be false and d.va isn’t used by the player

-one time wrecking ball’s ult didn’t reset completely and he remained big though the damage from rolling over enemies stopped

~~-disabling vanilla ultimate doesn’t always work. Could maybe try some better way.~~ Edit: should be better now

-one time sombra’s ult effects stayed on an AI bot after they had switched to Tracer.

-ai bots still sometimes use vanilla ultimates, idk if it’s just a problem with the AI bots specifically, haven’t noticed it happen recently as the player.

-lucio AI bots often shoot projectiles that look like they don’t move, but still seems like they hit targets??

-newly spawned roadhog for some reason couldn’t heal himself, maybe Ana’s ult mod??

Stuff to add/change:

-add visual effect to roadhog reflecting stuff

~~-maybe somehow stop symmetra from spawning portals out of bounds~~ edit: changed it so that she can only put portals on surfaces and not in the air above the map. This still lets her get out of bounds, but I added another rule that teleports players who used portals into the closest walkable position after the ult ends.

~~-maybe enable reaper's guns, but just teleport him out of bounds if he stays there while not in wraith form, edit: for some reason I remember having had reaper teleport in bounds after ult ends, but apparently that's not in there.~~ Edit: addressed this though he can still only use melee

-could maybe try using resurrect with brigitte instead of changing hero edit: tried it, didn't seem to work as far as I could tell although I'm not a 100% sure I did it correctly

-maybe with zenyatta could create a dummy bot that copies their moves while the actual possessed player is invisible so that the zenyatta can damage their allies, or maybe the zenyatta himself could transform into the enemy hero. Could use force player outline or whatever that is to still make the zen look like an ally.

-problem with this solution is that the skin might be different for the character between players

-could maybe do the whole thing in a sort of opposite way where the zenyatta just turns into the enemy hero and instead of zen's camera seeing the enemy's perspective, the enemy sees zen's perspective during the possession and the enemy is invisible and phased out like zen is right now. This way I actually wouldn't even have to replicate the move-set like the code currently does. And this way the zen possessing could damage the enemy's team.

-maybe a dummy bot would be the best solution so that the zen player won't take all the damage, although maybe that's not necessarily too bad

-could potentially use projectiles with widow's ult to get more accurate hits? Edit: The projectiles are probably too slow to hit and have unnecessary visual effects

-could maybe add a secondary fire to the ac-130

-~~could maybe come up with something else for Ana. Soldier's care package already sets cooldowns to 0~~ edit: added speed boost, ult charge and jump boost

-for tracer could maybe speed up projectile speed to make it like made in heaven lol

-maybe add some kind of global array that keeps track of all effects and destroys them if the player leaves the match or something or after a certain amount of time edit: it looks like the game might actually destroy effects created by players automatically if that player leaves or swaps team?

-could maybe use is true for any to check if any of the enemy players has variable set and then set stuff on the event player

~~-add dummy bot checks for all ults~~ edit: should be done I think though could maybe double check

-should maybe set pharah's hud text during ult into a variable so it is deleted correctly

-could maybe make baptiste’s amplification matrix do half damage or no damage from enemies that shoot through it, or would that be too weak, or maybe could spawn multiple matrixes with dummy bots that stack? Edit: gave him a barrier ult that blocks player movement

-maybe move comments from workshop.codes to here since they don’t get copypasted over from compiling

~~-junker queen adds new health pools and damage modifications when using her ult. Could maybe just add one then change its values~~. Edit: added

~~-could maybe make lucio’s ult more supportive, maybe add more temp health when the beat drops though you can only add so many health pools at a time. Could also maybe just do the emoting thing. Edit: emoting ult is too unreliable, potentially could do something similar to reinhardt where the buff is based on air time though that creates problems with sigma’s ult again~~ edit: Added increased health depending on air time

-maybe make wrecking ball’s ult turn him really small

-could add some way for Mei to increase the duration of her time stop. Maybe some kind of assassination target thing. Edit: The assassination thing could actually be a good for Ashe.

~~-Maybe for dummy bots do some kind of for player variable check that goes through all the slots and checks for the first free slot that can't be occupied by a player~~ edit: added

~~-for D.Va could maybe make all her upgrades into one time only upgrades, but add more of them. A shield and armor upgrade could be separate upgrades, a mobility upgrade that increases move and jump speed, etc.~~ Edit: added

-could maybe add a way for others to ride hanzo’s dragons

~~-for reaper could maybe make the out of bounds check only trigger at the end of the ultimate and when the player is on ground. Might cause an unnecessary teleport in some places that are in bounds though. Could also maybe just leave the out of bounds check out since it probably wouldn’t be a common issue.~~ Edit: added teleport into nearest walkable position at the end of ult

-could maybe make abilities that reset on death not reset until player has respawned as then they could be resurrected by Mercy

-stop using custom ult destroys last text id, maybe should make sure it doesn’t destroy anything unnecessarily.

~~-could use angle between vectors for checking if players hit walls with winston’s ult more consistently. Or maybe could compare the distance between the ray cast hit position and eye position with the full distance between eye position and the distance of where the ray cast was sent, in fact I’m not sure why I didn’t use this in the first place because I’m pretty sure I’ve done it before.~~ Edit: added the distance check. Could maybe add more ray casts for increased accuracy on uneven surfaces, works most of the time now though

-could maybe give winston more health during ultimate to reflect his size increase

-maybe store tracer’s ult effect into a variable to destroy it properly

~~-make sure symmetra’s portal positions are destroyed when she leaves~~ edit: done, sort of, it has a timer so they’re not instantly removed

~~-could maybe make Junkrat’s bomb drop into the ground if Junkrat drops it above ground.~~ Edit: done

~~-could maybe rework the hud text on reinhardt so that some of the values aren’t in smaller text~~ edit: done

-probably should rework brigitte’s ult so that the code for shield bash is done on brig’s side

-idk if I should make separate events for all the hero resets so it doesn’t have to go through each hero in the if else list

~~-right now because of how I made the b variable be always set to the hero you play regardless if they used their ultimate, the resets will play even when it’s not necessary. With tracer this resulted in the speed being reduced when switching hero. Perhaps could rework the speed bonuses to be their own variables that are kind of set to true or something when they are applied so that they won’t be applied more than once. Could also maybe make some kind of ”hero reset” variable that is set to true when the hero is reset, or could just make the b variable reset after ult reset again.~~ Edit: changed it back to b being set on ult use and being reset when ult is reset

-could maybe make orisa’s ult suck in enemies whenever she lands

-if D.Va falls off the map while the menu is active she can get her upgrades after she respawns. Pretty rare occurrence and not necessarily even worth fixing.

-could maybe add a timer to D.Vas menu so she can’t just stay in it forever.

-could maybe add a healing block when a player is about to explode from genji’s ultimate

-could maybe set max health instead of using health pools with Junker Queen, because the health pool doesn’t scale up her bonus health ability. Though maybe that’s fine.

-could maybe still try to add a green health pool with lucio’s ult and draining it with damage over time, could check for when the player took damage and if it goes past the threshold of the health pool then stop the damage over time?

-added heal to lucio’s ult to prevent max health from being reduced, but maybe should use set player health instead because healing might be blocked by ana’s grenade and junker’s ult?

-could maybe prevent others from healing the turret torbjörn

-could maybe add an RNG chance to get infected by Sombra’s virus that is increased the closer the player is to the player with the virus

-probably shouldn’t give ult charge to genji for his ultimate damage

-could add a bit of a warning to some of the ultimates, wrecking ball could turn big slowly instead of instantly which just kills everyone around him

-for junker queen could maybe reset the enemy players only after they’ve respawned, because then they could still be revived by Mercy.

-make sure ults get reset when player leaves

~~-widowmaker’s ult somehow detects non-players like bob or torb’s turret as well?? Should investigate how this works.~~ Edit: doesn’t actually work upon further testing, it was just happening probably because the players were too close to their pets.

-maybe have winston’s ult turn him into an actual giant, would have to disable collision with walls too so the server doesn’t crash

-maybe make floating zero g wrecking ball, can use mei ice form to grab on to thin air apparently

-have orisa’s spear impale enemies into walls

-have bastion shoot different projectiles every time the ultimate is activated

-add line of sight check when mccree shoots his ultimate and maybe don’t damage the ones that are behind walls or barriers

~~USING THE CURRENT GRAVITIES CODE DOESN’T NECESSARILY HELP ALL THAT MUCH RIGHT NOW SINCE I WAS SETTING GRAVITY JUST STRAIGHT TO ZERO WITH MANY ABILITIES ANYWAY SO IT’S NOT LIKE YOU NEED TO ADD OR SUBTRACT THAT MUCH AND YOU’D STILL PROBABLY HAVE TO REAPPLY THAT ZERO GRAVITY FOR SOMETHING LIKE PHARAH’S ULT IF SHE ENTERS AND LEAVES SIGMA’S GRAVITY ZONE. COULD POTENTIALLY DO THE ZERO GRAVITY BY SUBTRACTING GRAVITY AS WELL OR JUST GET RID OF THE CURRENT GRAVITIES AND SPEEDS AND JUST MAYBE ADD SOME CONDITIONS WHEN GRAVITIES ARE BEING APPLIED DURING DIFFERENT ULTIMATES~~

Usingcustomult subroutine, might need to remove some stuff from it that doesn't affect all heroes with custom ults:

Destroy Effect(Event Player.UltEffect);

Event Player.UsingCustomUlt = null;

Destroy HUD Text(Event Player.UltReadyText);

Event Player.UltReadyText = Null;

Set Ultimate Ability Enabled(Event Player, True);

Event Player.B = Null;

Stop Chasing Player Variable(Event Player, G);

Event Player.G = 0;

Destroy HUD Text(Last Text ID);

Set Primary Fire Enabled(Event Player, True);

Set Secondary Fire Enabled(Event Player, True);

Set Damage Dealt(Event Player, 100);

Set Max Health(Event Player, 100);

Destroy Effect(Event Player.Y);

Event Player.Y = 0;

Stop Camera(Event Player);