User Stories and Acceptance Criteria

Users

Players

Epic User Stories

- 1) As a player, I should be able to work with currency so I can build my own soldiers and infrastructure
- 2) As a player i should be able to control my units and structures so i can interact with other players/AI
- 3) As a player, I should be able to control the game state via a main menu, so I can start/pause new/existing campaign.
- 4) As a player, I should have one or more win conditions, so I can finish the game

Estimation of Story Points

• 1 Story Point = 1 hours (1SP)

Priority Rating

- 1 = High Priority
- 2 = Medium-High Priority
- 3 = Medium Priority
- 4 = Low Priority

Minimum viable product

Minimum viable product would be all the user stories with priority rating from 1 to 2

Initial Epic Story #1:

As a player, I should be able to work with currency so I can build my own soldiers and infrastructure

Detailed User Stories:

ID	E1 US1
Name	Movement

User-Story Description:

As a player, I should be able to control my troops and move them wherever I want, unless

restrictions are applied, so that I can move my units to do certain objectives across the map.

Acceptance Criteria:

- After selecting the units, you should be able to see information regarding the troops
- After selecting and attempting to move the units, you should be able to visually see that they have travelled to the destination.
- Movement points should be displayed somewhere within the UI
- After moving to a destination province, you should be able to see that movement points have been reduced, since you have moved.
- When attempting to move past enemy territory, it should instead be the shortest alternative path that doesn't go through enemy territory
- When attempting to move units past their movement points, the request is then rejected.
- When attempting to move the units on top of enemy territory that is in range, the request is then rejected.
- If a movement request is rejected, then the units should still be in the same location as they were before.
- An error message should display stating "You are not able to move to this destination"

Estimate	2
Priority	1

ID	E1 US2
Name	Varying player movement

User-Story Description:

As a player, my troops movement distance should depend on the type of unit and development of the roads, so that I have to think about which will explore/defend/attack since there will be varying movement distance.

- By default, the number of movement points available to a unit each turn depends on its category:
 - Cavalry = 15 movement points
 - Infantry = 10 movement points
 - Artillery = 4 movement points
- The number of movement points used moving across a province should depend on the level of roads, as follows:
 - No roads = 4 movement points
 - Dirt roads = 3 movement points
 - Paved roads = 2 movement points

	Highways = 1 movement point (Only the Romans should be able to build highways).
Estimate	1
Priority	2

ID	E1 US3
Name	Attacking

As a player, I should be able attack multiple enemy provinces in a single turn, as long as certain restrictions are applied, so that I can take down my enemies faster.

Acceptance Criteria:

- To attack multiple enemy provinces in a single turn they must use different instances of units
- Factions cannot "attack through" a settlement they conquered in the current turn

Estimate	1
Priority	3

ID	E1 US4
Name	Group Movement

User-Story Description:

As a player, I should be able to select several units for movement from a province to another province, so that my quality of life will improve as I don't have to move each individual unit.

- If several units are on the same province, the user is able to select them all in a group
- Once selected, the movement points being displayed should show the lowest.
- When moving a certain amount of blocks, movement points should be taken out at the same rate as if they were moving individually on those blocks.
- When attempting to move past the lowest troop's movement points the request should

be rejected. Otherwise if troops move within the lowest troop's movement points then you should be able to visually see that this move was valid.

- In the case where the lowest troop's movement points have been exhausted. The player should be able to select the troops independently and move further than its original destination.

Estimate	2
Priority	2

ID	E1 US5
Name	Infrastructure

User-Story Description:

As a player, I should be able to construct different types of buildings that help assist me in/out of battle, so that I can strategically plan what buildings to construct in order to beat every other player.

- Players should have the options on the UI to build a troop production building, wealth generation building, walls, smiths and roads.
- Once these buildings are constructed you should be able to visually see that the building is now within the province that you constructed them in.
- Players are then able to upgrade these buildings after they are constructed.
- After upgrading/constructing these buildings they should give you bonuses/features
- All of these stat bonuses should apply scalar addition bonuses before all multiplicative bonuses.
- Each province will have up to 1 building per building chain at any time and is only able to construct one building at a time.
- Assuming that constructing a building requires gold, so if the building can be constructed if the player has enough gold, otherwise the request will be rejected and an error message is displayed "Not enough gold!"

Estimate	3
Priority	1

ID	E1 US6
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Acceptance Criteria: - These reduce th - Roads can be up travel between the stimate 3 Priority 2 ID E1 US7 Name Walls User-Story Description: As a player, I should be can strategically plan where the strategical plan where the strategica	able to construct roads that help assist me in/out of battle, so that I d up my troops or enemy troops. e rate at which movement points of soldiers are used up. ograded which can further reduce the movement points required to he province.
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Buffers to all trocWalls should be	able to construct walls that help assist me in/out of battle, so that I hat buildings to construct in order to beat every other player.
 Walls should be 	
	ops defending a province able to upgrade to Archer towers able to upgrade to ballista towers walls, towers should then be able to attack.
Estimate 3	
Priority 2	

ID	E1 US8
Name	Training Troops/Mercenaries

User-Story Description: As a player, I should be able to train units and advanced units where advanced units are

unlocked through different "chains" of buildings, so I can build an army and replace units if they are killed in action.

Acceptance Criteria:

- After construction the player should be able to train units for combat.
- An interface should be displayed showing either image/text of the units available to train.
- Some units will be "possibly" greyed out since the player has not unlocked them.
- Once we have unlocked these units we can then train them and use them.
- If we attempt to train units when we do not have enough money for them, then the request will be rejected and an error message is displayed "Not enough gold!"
- Once we finish training a unit, they should spawn on top of the province they were training on.
- Soldiers will not incur upkeep costs.
- Soldiers who have finished training appear at the *beginning* of the turn they are due to finish training.
- When troops are finished training, they will spawn on the troop production building, unless they are mercenaries, in that case they can be spawn to any province on the map the user chooses
- Having spare training slots doesn't allow the training to be sped up
- If the unit is a mercenary, then they should have the prefixed name "Mercenary"
- Mercenaries do not have a training period, nor do they take space for training.

Estimate	3
Priority	1

ID	E1 US9
Name	Wealth Generation Buildings

User-Story Description:

As a player, I should be able to build wealth generation buildings that contribute towards my empire and objective win, so that the game I plan is more interesting and strategic.

- Farms should increase the rate of troop production and increase the number of units the settlement can train per turn.
- Each port increases the before-tax rate of town-wealth growth for all sea regions owned by a province by an additional scalar value.
- Each market reduces the construction cost of all buildings across the faction in a multiplicative fashion
- Each mine reduces the initial cost of all soldiers in the province in a multiplicative fashion (similar calculation to markets).
 - The highest level of mine will reduce the time taken to construct all buildings

across the faction by 1 turn - This bonus can be applied multiple times	
Estimate	3
Priority	2

ID	E1 US10
Name	Smiths

As a player, I should be able to help my troops out, by giving them bonuses for their armor, so that I can gain an edge when it comes to unit combat.

Acceptance Criteria:

- Provinces battle bonuses to troops produced in the region
- Smith bonuses can include 1 or more of the following (these bonuses stack):
 - Upgraded helmets enemy unit attack damage reduced by 1 (to a minimum of 1 attack damage)
 - Upgraded armour suit enemy unit attack damage (ranged and melee) reduced by 50% (to a minimum of 1 attack damage), speed of the soldiers wearing the armour reduced by 20%
 - Upgraded weapon wielding units attack damage increase by 20%. Morale of the wielding unit increased by 10%
 - Fire arrows archers shoot arrows reducing morale of enemy soldiers in a skirmish with them by 20%, but lose 10% of missile attack damage (to a minimum of 1 missile attack damage)

Estimate	3
Priority	3

ID	E1 US11
Name	Conquering province

User-Story Description:

As a player, if my province contains a building that is under construction or is training a unit,

then I should be punished in some way, so that I can discipline myself to play better and prevent myself from losing province.

Acceptance Criteria:

- If a province is lost and a building was under construction then we will not be able to get a refund of gold and the construction is cancelled.
- This is also applied to troop production, that is training a unit is cancelled and refund of gold is not possible.

Estimate	3
Priority	3

ID	E1 US12
Name	Soldier State

User-Story Description:

As a player, if my troop/s are killed or disbanded these troops will be removed from the game and aren't refunded, so that I can be decisive and micro my troops carefully rather than going in killing them off.

- If troops are killed, the player no longer has the ability to control them.
- Also, the troops should no longer be displayed in the game, essentially removing their existence from the game.
- When units die, the gold count should not go up since they cannot be refunded.

Estimate	3
Priority	2

ID	E1 US13
Name	Purchasing Mercenaries
User-Story Description:	

As a player, I get to pick through a range of mercenaries, so that I can purchase units at any time of the game.

Acceptance Criteria:

- After every turn the list of mercenaries provided should change to a variation that is different to the one before.
- Through the list of options available artillery should never be an option.
- Mercenaries will have a higher initial purchase cost
- Penalties to combat abilities which will vary depending on the unit,
 - Horse archer mercenaries incur double the initial recruitment cost. Each type of horse archer has a 3% chance of being available per turn.
 - Melee cavalry mercenaries (including heavy cavalry, lancers, elephants, chariots) incur triple the initial recruitment cost. They suffer from a 20% loss of morale. Each type of melee cavalry has a 5% chance of being available per turn.
 - All infantry mercenaries (including missile infantry, heavy infantry, and spearmen) incur double the initial recruitment cost. Each unit of mercenary infantry reduces the morale of all friendly units in the province by 10% (stacks in a multiplicative fashion). Each type of heavy infantry has a 10% chance of being available per turn.
- Mercenaries can be recruited by any faction, without requiring infrastructure to obtain them
- Mercenaries should receive the same bonuses as non-mercenaries, these bonuses are applied similarly to smith bonuses

Estimate	3
Priority	3

ID	E1 US14
Name	Soldier Special Abilities and Combat Statistics

User-Story Description:

As a player, I should notice that each unit has their own special abilities and combat statistics, so that I see that units are doing something and utilise forces that will reign supreme during certain fights.

Acceptance Criteria:

- For all Roman legionary units: "Legionary eagle" - provides +1 morale to all friendly units in the province. For every legionary eagle lost to the enemy (by the unit being destroyed defending a province) all friendly units across all provinces suffer a 0.2

- penalty to morale until the settlement is recaptured (down to a minimum of 1 morale)
- For all Gallic/Celtic Briton/Germanic berserker units: "Berserker rage" unit receives infinite morale and double melee attack damage, but has no armor or shield protection, in all battles
- For all melee cavalry: "Heroic charge" where the army has fewer than half the number of units as the enemy, this cavalry unit will double its charge attack damage, and have 50% higher morale
- For all pikemen or hoplite units: "Phalanx" these hoplites or pikemen have double the melee defence, but half of the speed, as they are otherwise configured to have
- For all javelin-skirmisher units: "skirmisher anti-armour" in ranged engagements, troops fighting these skirmishers only receive half the protection from armour they would receive otherwise
- For all elephant units: "Elephants running amok" during any engagement with elephants, there is a 10% chance that the casualties inflicted by a unit of elephants will instead be directed at a random allied unit (as if the elephants were battling the allied unit directly)
- For all horse-archer units: "Cantabrian circle" when enemy missile units engage this unit of horse archers, the enemy missile units will suffer a 50% loss to missile attack damage
- For all druid units: "Druidic fervour" allied units in an army with druids enjoy a 10% bonus to morale, and enemy units suffer a 5% penalty to morale, whilst the druids haven't routed. The effect of this ability is amplified by scalar addition, and can be amplified up to 5 times (e.g. 2 druids results in allies receiving 20% bonus to morale and enemy units suffering 10% penalty, however 6 druids provides 50% bonus and 25% penalty respectively)
- For all melee infantry: "Shield charge" for every 4th engagement by this unit of melee infantry per battle, the value of shield defense is added to this unit's attack damage value

Estimate	4
Priority	3

ID	E1 US15
Name	Wealth and Taxes

As a player, I should have a wealth, gold and tax system that is affected by wealth buildings, so I can have a currency system and objective to win the game.

Acceptance Criteria:

- Province wealth represents the collective wealth of the people and infrastructure in the province

- Distinct from the treasury; treasury is the gold you spend on troops/buildings
- Province wealth is composed of town wealth
- Wealth generation buildings increase base wealth immediately, and also increase the turn-by-turn town-wealth generation rate.
- Wealth cannot be spent; it is taxed to produce tax revenue for the faction's treasury.
- The tax revenue generated is always equal to province wealth x province tax rate
- The minimum wealth of a province is equal to the building wealth of the province
- Taxes are managed at the province level by the player.
- Higher tax rates reduce the growth of town-wealth in a region (and can make it negative).
- The effects of different tax levels are:
 - Low tax = +10 town-wealth growth per turn for the province, tax rate = 10%
 - Normal tax = No effect on per turn town-wealth growth, tax rate = 15%
 - High tax = -10 town-wealth growth per turn for the province (i.e. 10 gold loss to wealth per turn), tax rate = 20%
 - Very high tax = -30 town-wealth growth per turn for the province, tax rate = 25%, -1 morale for all soldiers residing in the province

Estimate	4
Priority	3

Initial Epic Story #2:

As a player i should be able to control my units and structures so i can interact with other players/AI

ID	E2 US1
Name	Battle

User-Story Description:

As a player, my armies should be able to be involved in a battle, so I can defend invaders or invade others.

- When a skirmish takes place, the army left standing is victorious.
- If the attacking army in an invasion is victorious, the province is conquered by the invaders.
- During a battle, walls doubles the melee defence of all troops defending a settlement(exclude when fighting artillery)
- During a battle, walls reduce the missile attack damage of attacking archers by 50%(to a minimum 1)

- During a battle, walls reduce the missile attack damage horse archers to 1.
- During a battle, when a army is defending walls with towers(archer tower or ballista towers), the tower can be selected as a unit(within finite defence, except against artillery)
- The number of towerscan be included as units will depend on how developed the walls are.
- During a battle, towers have infinite morale(they cannot route)
- During a battle, if it last longer than 200 engagement, the outcome should be a draw, the invading army in a draw should return to the province it invaded from.

Estimate	3
Priority	2

ID	E2 US2
Name	Skirmishes

As a player, my units from each armies should be able to be involved in a skirmish, so I can defeat opponents' units from their armies.

Acceptance Criteria:

- At the beginning of a skirmish, a unit is randomly chosen from each of the armies(uniformly random)
- During a skirmish, both units engage in a sequence of engagements against each other unit successfully routes or is defeated.
- During a skirmish, if an attacking unit is against a tower, the skirmish may end before the attack unit routes or is defeated(by random chance)

Estimate	4
Priority	2

ID	E2 US3
Name	Same class engagement

User-Story Description:

As a player, my units should be able to engage in a sequence engagements to determine if my units win or lose in a skirmish

Acceptance Criteria:

- In all engagements (with or without walls), if both units are melee units, there is 100% chance of a melee engagement
- In all engagements (with or without walls),if both units are missile units, there is 100% chance of a missile engagement
- Result of all engagements should be presented to the user iva visual or text information

Estimate	4
Priority	3

ID	E2 US4
Name	Different class engagement

User-Story Description:

As a player, my units should be able to engage in a sequence engagements to determine if my units win or lose in a skirmish

- In a battle without walls, if there is 1 ranged unit(artillery, horse archers, missile infantry) and 1 melee unit, there is a base-level 50% chance for the engagement to be a ranged engagement and a base-level 50% chance for the engagement to be a melee engagement
- In a battle with walls, if there is 1 ranged unit and 1 melee unit, there is a base-level 90% chance for the engagement to be a ranged engagement, and a base-level 10% chance for the engagement to be a melee engagement
- The base-level chance of engagement is increase by 10% * (melee_unit_speed ranged unit speed)
- If an engagement has both melee and missile unit, the maximum chance for an engagement to be either a ranged or melee engagement is 95% in either case (except where a tower is an engagement all battles involving a tower will be ranged engagements)

Estimate	4
Priority	3

ID	E2 US5
Name	Tower engagement

As a player, my towers should be able to contribute in an engagement, so I can defend invaders easier.

Acceptance Criteria:

- In an engagement against artillery, towers have 100 health points, and suffer a loss in health point for every engagement with an artillery unit
- If a tower losses all health points, it is disabled for the duration of the battle.
- In an engagement against infantry or cavalry, towers inflict damage against the enemy unit in the same fashion as missile infantry without suffering damage
- Units fighting towers do not route, and have a chance of escaping from each engagement (returning to the army for another skirmish) of minimum(50% +(speed * 10%),100%)*

Estimate	4
Priority	3

ID	E2 US6
Name	Inflicing of casualties(Ranged)

User-Story Description:

As a player, my ranged units should be able to inflict and receive damage so skirmishes are not endless

- Melee units cannot inflict damage in ranged engagement
- Ranged units in a ranged engagement inflict casualties against the opposing unit equal to: (size of enemy unit at start of engagement * 10%) * (Missile attack damage of unit/(effective armor of enemy unit +effective shield of enemy unit) * (N+1)) [where N is a normally distributed random variable with mean 0 and standard deviation 1]
- Ranged units in a ranged engagement can inflict up to a maximum of the entire enemy unit, with a minimum of non of the enemy unit
- Cavalry/Chariots/elephants attacking a province with walls do not receive any melee bonus from their charge statistic
- Infantry and artillery do not receive a charge statistic

l Estimate	4

Priority	3

ID	E2 US7
Name	Inflicing of casualties(Melee)

As a player, my melee units should be able to inflict and receive damage so skirmishes are not endless

Acceptance Criteria:

- Units in a melee engagement inflict casualties against the opposing unit equal to (size
 of enemy unit at start of engagement * 10%) * (Effective melee attack damage of
 unit/(effective armor of enemy unit + effective shield of enemy unit + effective defense
 skill of enemy unit))*(N+1) [Where N is a normally distributed random variable with ean
 0 and std of 1]
- Melee cavalry/Chariots/elephants defending a province with walls, or attacking a province without walls, will have an attack damage value in all engagement equal to their melee attack damage+charge value.

Estimate	4
Priority	3

ID	E2 US8
Name	Breaking unit

User-Story Description:

As a player, my units should have a chance to break or flee during the engagement so it adds on uncontrollable fact to the game

- The base-level probability of a unit "break" following an engagement is calculated as 100% (morale * 10%)
- The chance of fleeing the battle is increased by (a scalar addition): (casualties suffered by the unit during the engagement/number of troops in the unit at the start of the engagement)/(casualties suffered by the opposing unit during the engagement/number of troops in the opposing unit at the start of the engagement) x 10%
- For any engagement, the minimum chance of fleeing the battle is 5% and the

- maximum chance of fleeing the battle is 100%
- If both units break, they both successfully flee the battle without inflicting further casualties upon each other
- Units which break will not attempt to return to the battle

Estimate	4
Priority	3

ID	E2 US9
Name	Routing

As a player, my units should have a chance to rout during the engagement so it adds on uncontrollable fact to the game

Acceptance Criteria:

- If a unit "breaks" and the opposing unit does not, it will repeatedly attempt to flee the battle until it is successful in doing so or it is destroyed.
- Each failure flee resulting in an engagement in which the fleeing unit suffers casualties, without damaging the pursuing unit
- If a unit breaks, there is a base 50% chance of it successfully routing for every attempt.
- The minimum chance a unit can have to successfully route is 10%
- The maximum chance it can have is 100%.
- The speed of the units in the engagement affect the chance of successfully routing
- Chance of routing successfully is calculated using 50% + 10% x (speed of routing unit speed of pursuing unit)
- If a unit successfully routes from the battle, if it is in an attacking army which loses the battle, it will return to the province from which it attacked.
- If a unit successfully routes from the battle, if it is an attacking army which wins the battle, the routing unit will join the army in moving into the new province
- The entirety of a defending army which is defeated/routed is destroyed.

Estimate	4
Priority	3

Initial Epic Story #3:

As a player, I should be able to control the game state via a main menu, so I can start/pause new/existing campaign.

ID	E3 US1
Name	Main menu

User-Story Description:

As a player, I should be able to see a main menu when I launch the game, so I have control over the game state

Acceptance Criteria:

- Upon starting the game, the user should be presented with a main menu
- On the main menu, user should be able to select for a "Campaign Al"
- On the main menu, user should be able to select for a "Battle Resolver"
- After selecting any/all relevant settings, user should be able to start the campaign game
- On the main menu, user should be able to select if they want to start a new game
- On the main menu, user should be able to select if they want to continue from a previous paused game

Estimate	3
Priority	4

ID	E3 US2
Name	Pausing the game

User-Story Description:

As a player, I should be able to pause the current game, so I do not have to start over again every time.

- During the game, player should be able to pause the game
- Paused game detail should be stored outside the system

Estimate	3
Priority	4

ID	E3 US3
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Name	Campaign AI
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As a player, I should be able to play the game against AI, so I can practice the game.

Acceptance Criteria:

- In campaign AI, factions should first try to spend up to 50% of their treasury balance on infrastructure.
- Al will initially prioritize the cheapest buildings. If there are multiple buildings of the same price, it will prioritize by category of building in the following order
- After purchasing infrastructure AI will try to spend the remaining treasury balance on recruiting units
- After choosing a unit category, the AI will prioritize recruiting the recruitable unit with the highest initial cost (randomly chosen if equal cost).
- After choosing a unit, the AI will prioritize recruiting from the province closest to an enemy province (chosen randomly if even)
- When moving soldiers the AI will move all soldiers in a province at once to the aforementioned closest province
- The AI will first move the troops from the non-border province closest to this destination border province
- If there are multiple closest origin provinces, the AI will randomly choose a province to move troops from (uniformly random)
- Similarly to the player, the AI automatically sends the units on the shortest path to the destination border province
- Once the AI has picked a destination border province for some units, they will move to this province until reaching the destination
- The basic campaign AI will first attack a neighbouring province with the fewest units
- If fewest units are equal, AI will attempt to attack with its army with the most units
- The basic campaign AI never tries to recruit mercenaries, or disband troops
- The basic campaign Al always applies a normal tax rate for all province

Estimate	5
Priority	4

Initial Epic Story #4:

As a player, I should have one or more win conditions, so I can finish the game

ID	E4 US1
Name	Conquest goal

User-Story Description:

As a player, I should have "conquering all territories" as one of the win conditions, so I can examine my attack strategy.

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Estimate	3		
Priority	4		
ID	E4 US2		
Name	Treasury goal		
As a player, I	User-Story Description: As a player, I should have "accumulating a treasury balance of 100,000 gold" as one of the win conditions, so I can examine my gold spending strategy.		
Acceptance C	Acceptance Criteria:		
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Estimate	3		
Priority	4		
ID	E4 US3		
Name	Infrastructure goal		
As a player, I	User-Story Description: As a player, I should have "building all possible infrastructure across all settlements" as one of the win conditions, so I can examine my building strategy.		
Acceptance Criteria:			
Estimate	3		
Priority	4		
ID	E4 US4		
Name	Wealth goal		

As a player, I should have "accumulating faction wealth of 400,000 gold" as one of the win conditions, so I can examine my finance strategy.

Acceptance Criteria:

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Priority	4

ID	E4 US4
Name	Multiple goals

User-Story Description:

As a player, I should have multiple goals as win conditions, so the game is challenging.

- At the start of a campaign game, a logical statement declaring the win condition of this particular run.
- Upon reaching the victory condition, the game should be automatically saved.
- Upon reaching the victory condition, the user presented with an interface congratulating them on their victory.
- Reloading the automatic save should allow the user to continue playing the game, without further victory prompts

Estimate	1
Priority	4