Pendulous

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1.0 Introduction
1.1 Introduction

Every aspect of Pendulous has been designed with simplicity and strategy in mind. You now have a game that is easy to learn, fast to play, and allows great strategic freedom.

1.2 Game Overview

This is a game of teritorial conquests. Players are awarded victory points each turn, and the player with the greatest number of victory points after the last turn is the winner. Victory points are awarded for land square that are owned and in supply and owned city squares. The game starts with a setup turn where resource points are not used and attacks are not allowed. Each player will be given opportunity to arrange armies on the map during this setup turn. After the setup turn players alternate taking turns in which they can pickup or place armies on the map. Placing armies on enemy squares consitute an attack and placing armies on owned squares are used for defense and/or supporting up coming attacks on enemy squares. Cities are very important in Pendulous, they are a source of supply and they generally have a higher victory point value then land squares.   At the completion of a players turn any squares which can not trace a supply line to a friendly city become unsupplied. If unsupplied squares are not brought back into supply any armies on these squares will be disbanded and ownership of the squares will start to revert to adjacent players. The number of armies, number of resources, land ownership at the beginning of the game and numerous other parameters are controlled by the scenario selected for play.

At this point it may be helpful to watch Pendulous being played by two computer players. Start up Pendulous and select from the menu FILE|NEW. You will now see a list of scenarios supplied with Pendulous. Select a scenario and when the dialog box appears asking for the Player Assignments select computer for all players shown (not grayed). When the dialog boxes appear asking for the computer player that will command each player select any player from the list and then press the OK button. For all other dialog boxes that appear just press the OK button. At the end of each turn a dialog box will appear which shows the current score, you can press the OK button to clear this display. While the computer players are executing their moves feel free to scroll the map around and access any of the game menus.

2.0 Rules of Play
2.1 Map

The map in Pendulous is divided into squares which represent the battlefield. The squares can be either land or city squares and are colored to that of their owning player. Land squares can contain an army and may or may not be in supply. City squares are their own source or supply and may not contain armies. Every square is owned by one of the players in the game. All squares have a defense value, land squares have a value of 2 and city squares have a value of

25. In addition to this, city squares support the eight surrounding squares with a defensive value of 5 per square.

An army on a square also adds to the defense value of that square and the surronding eight squares. Defense values as well as attack values will be covered more fully in the section on combat. Land squares which are out of supply are colored black and outlined in the owning players color. When ownership of land or a city changes the color of that square also changes to that of the new owner.

All blue portions of the map represent water such as lakes, rivers, and oceans. No action can take place on the water areas. These areas do however play an important part in the strategies of Pendulous since they block supply pathes.

Cities which have water as any of the surrounding squares are port cities. Port cities allow naval invasions to take place to any costal square on the same body of water as long as naval invasions are enabled for the scenario being played.

Diagonal squares all always valid paths in Pendulous for figuring supply and naval invasion paths as well as determining adjacent squares.

2.2 Players

Up to four players can play Pendulous depending on the scenario selected. Any mix of human and computer players are allowed. The colors red, gray, green, and blue represent the players and turns proceed in this order (red, gray, green, blue).

2.3 Victory Points

At the start of each players turn and at the end of the game victory points are accumulated for squares that are owned and in supply. The number of points accumulated for each square depends on the scenario being played. Land squares generally have a lower victory point value than city squares.

2.4 The Game Turn

Each turn in Pendulous consists of each player given a chance to pickup and place armies on the map, provided they have the necessary force pool and resources. The first turn in a game is the setup turn. Here each player is given the chance the arrange all at start forces on owned squares. Armies can be freely pickup and placed on owned map squares during the setup turn without expending any resources.

After the setup turn, normal game turns begin. These procede in the same manor as the setup turn except that attacks are allowed and one resource point is expended for each army picked up or placed on the map.

At the start of each players turn the reinforcement rate value is added to that players force pool and the resource rate value is added to that players resources. These are forces and resources that this player will receive on every turn in the game except the setup turn.

When the player has finished his turn select the TURN|END TURN menu.

If at the end of any turn a player has control of no cities this player is out of the game and all owned land squares become unsupplied.

2.5 Armies

Armies are a players only direct tool available to win at Pendulous.

Two basic operations can be preformed in Pendulous. You can place armies on the map from the force pool and you can pick up armies off the map, they will be placed in the force pool. So the force pool is the holding area for all armies that are not on the map. Armies are never moved directly on the map they must first be placed in the force pool.

To place an army on the map you first must have at least one army in your force pool and you must have at least one resource point. Both of these values are always visible on the left side of the game window. Use the mouse cursor to select the map square you desire and press the left mouse button. If the square you selected is a legal square the army will be moved from your force pool on to that map square and one resource point will be used. What consitutes a legal map square will be covered later.

When placing an army on a map square owned by an enemy will cause an attack to take place on that square, this attack may or may not succeed.

To pickup an army off the map you first must have at least one resource point. Use the mouse cursor to select the map square that contains an army that you wish to pickup and press the left mouse button. As long as the army you selected is in supply it will be picked up and placed in the force pool.

An army being placed on an enemy square has an attack value of 10. Armies on the map next to an enemy square being attacked support in the attack with a value of 5. Armies on a square being attacked give that square a defense value of 15. Armies next to a friendly square being attacked add 5 points to the defense of that square.

Each player receives a fixed number of armies during the setup turn and then each turn there after a fixed number may be received as reinforcements. These numbers are set per scenario.

Armies can be reused any number of times in a game turn as long as resource points are available.

2.6 Resources

Resources can represent a variety of things in Pendulous, from a players technological advantage to a players fuel and ammunition state to the actual makeup of forces within ones army with higher resource numbers representing more modile forces.

Resources in Pendulous determine how mobile a players forces can be. For each army placed on the map one resource point is expended. For each army picked up off the map one resource point is expended.

As with reinforcements a player receives a fixed number of resources on the first turn of the game and then receives a fixed number of resources at the start of each turn.

2.7 Combat

Combat occurs in Pendulous when a player attempts to place an army on a square (land or city) owned by another player. The loser of the battle will lose an army. If the attacker wins, the

square attacked will change ownership (color) to the attacker. If the attacker loses one army will be subtracted from the force pool. The attacker will expend one resource point regardless of who wins the combat.

In order for a square to be a valid attack square the player must have a friendly square adjacent to the target square.

To reflect the uncertainty in combat, randomness plays a part in the resolution of combat. To resolve combat defender and attacker accumulate points as follows:

> Attacker Points
> > - 10 points for attacking army
> > - 5 points for each attackers army next to target square   - 2 points for naval invading army
> > - 3 points for each attackers city next to target square
>
> Defender Points
> > - 2 Points for land
> > - 15 Points for army in defending square
> > - 5 Points for each defenders army next to target square
> > - 25 Points for city square
> > - 5 Points if target square is next to defender city
> > - 0 Unsupplied square (no support is given)

In addition to the above points some percentage modifier may be applied to the attacker and defender point totals. Each time a player attacks the same square successivly the attackers point value increases by 25%.
So on the second attack to a square the attacker will get a 25% bonus on the third attack the attacker will get a 50 % bonus etc. Each player for every scenario is given a army effectiveness percentage. This represents a direct percentage of points bonus or detriment. So a player with a army effectiveness of 80% would receive just 80% of his attack or defense points for every combat, and a player with 120% would receive a 20% bonus for his attack or defense points for every combat.

Once the points values are determined for attacker and defender they are compared to give a percent chance that the attacker will succeed. So if the attacter has 25 points and the defender has 25 points its a 50% chance of success. If the attacker has 10 points and the defender has 30 points its a 25% chance that the attacker will win.

Of course all of the above combat resolution procedures are preformed automatically and the values of always visible on the left side of the game window.

Naval invasions are resolved in the same manor as land attacks, the only difference is what consitutes a valid square. To preform a naval attack the target square must have water in one square around it and the attacking player must have a port city on that body of water. Naval invasions should only be used when no other choice exists, they are vary risky because invading armies need to battle for a source of supply before the invading players turn is over.

2.8 Supply

Supply plays a big role in Pendulous, An entire game can be lost if all of ones armies are distroyed by getting their lines of supply cut.

Every friendly city is a source of supply for that player. Every land square must be able to trace a line of supply to a friendly city. To trace a line of supply a square must be adjacent to another

friendly square which is in supply, and so on. You can picture supply as speading out from each friendly city, speading first to each friendly square adjacent to the city then each square that is adjacent to the squares next to the city. this continues until all squares have been checked.

At the end of each players turn this supply check is preformed. Any squares that are found to be out of supply are colored black and outlined in the owning players color. If friendly squares are found to be out of supply at the end of the players turn, any armies on those squares are disbanded. This is effect gives a player one turn to bring friendly squares (which were forced out of supply by another player) back into supply.

At the start of each players turn any enemy unsupplied square adjacent to any square owned by this player and in supply reverts ownership to this player. This allows a player to capture many squares without ever needing to attack each square.

3.0 Special Functions
3.1 Reports

During a game various status reports can be viewed.

3.1.1 Player Settings Report: REPORTS|PLAYER SETTINGS

This report gives information about each players current status in the game. The following values are shown in the report:

Reinforcement Rate: The number of armies each player will receive at the start of the players turn.

Resource Rate: The number of resource points each player will receive at the start of the players turn.

Maximum Forces: The total number of armies each player can have on the map and force pool at any time during the game. Reinforcements will not be given to the player that would cause the army count to exceed this maximum force count.

Force Pool: This is the current number of armies in each players force pool.

Resources: This is the current number of resources accumulated by each player.

Victory Points: This is the current number of victory points accumulated by each player.

Army Effectiveness: This is the percent of army effectiveness applied to combat resolutions for each player.

3.1.2 Game Settings: REPORTS|GAME SETTINGS

This report gives information about the scenario being played.

Number of Turns: The number of turns in the current scenario

Victory Points: Land: The number of victory points accumulated each turn for each land square owned.

Victory Points: City: The number of victory points accumulated each turn for each city square owned.

Naval Invasions Allowed/Not Allowed: This indicated whether naval invasions are allowed for this scenario.

3.1.3 Combat Report: REPORTS|COMBAT REPORT

This report gives information on the combat resolutions which have occured.

Total Attacks: This shows a count of the number of attacks each player has made.

Total Defenses: This shows a count of the number of defenses each player has made.

Attack Success %: This shows the percentage of successful attacks preformed by each player.

Defense Success %: This shows the percentage of successful defenses performed by each player.

Average Attack %: This shows the average attack success percentage for each player.

Average Defense %: This shows the average defense success percentage for each player.

3.2 Saving Games

Once a game has been started it can be saved at any point for later continuation. To save a game in progress select the menu FILE|SAVE GAME. A dialog box will appear, enter an eight character discription of the game being saved. These eight characters plus .sav will be the actual file name used to save the game.

3.3 Playing Saved Games

To play a saved game select the FILE|RELOAD SAVED GAME menu. A dialog box will appear, select or enter the name of the saved game you wish to play.

3.4 World View Map

The world view map is an optional display only window which can be activated. This will allow players to see the entire map at a smaller scale. This of course is only neccessary for scenarios with maps too large to be seen on the screen all at once. To activate the world view map select the OPTIONS|WORLD VIEW menu. To deactivate, select the menu again.

3.5 Other Menus and Dialogs

OPTIONS|END TURN DIALOG: This allows turning off the end turn dialog box that appears at the end of each turn. Select this menu to turn this option off and on. This is useful when you have the computer play all players in the background.

HELP: The online help has not yet been implemented.

HELP|ABOUT: This menu shows the game credits.

4.0 Scenario Editor

Pendulous includes a complete scenario editor. In the editor scenarios can be created and edited. All scenarios included in Pendulous were developed in this editor. To enter the scenario editor select the FILE|SCENARIO EDITOR menu.

4.1 Scenario Editor Map

On the left side of the game window exist two sets of radio buttons. The top group is the player select group, the bottom group is the map type select group. By selecting the player and the map type you determine the type of square that will be placed on the map. Once the player and map type have been selected bring the mouse cursor over the map area. To place or overwrite a square press the left mouse button, the new square will appear. To draw multiple square hold down the left mouse button and move the mouse over the map.

4.2 Scenario Settings

The scenario editor gives access to a variety of dialog boxes which allow setting all of the adjustable portions of a scenario.

4.2.1 Player Settings: SETTINGS|PLAYER SETTINGS

The values specific to each player are set here.

Reinforcement Rate: The number of armies each player will receive at the start of the players turn.

Resource Rate: The number of resource points each player will receive at the state of the players turn.

Maximum Forces: The total number of armies each player can have on the map and force pool at any time during the game. Reinforcements will not be given to the player that would cause the army count to exceed this maximum force count.

Initial Forces: This is the number of armies each player will have added to the force pool at the start of the setup turn.

Start Resources: This is the number of resource points each player will have on the first turn (plus the resource rate).

Start Victory Points: Victory points can be given to each player at the start of the game for balance or handicap purposes.

Army Effectiveness: This is the percent of army effectiveness applied to combat resolutions for each player.

4.2.2 Scenario Settings: SETTINGS|SCENARIO SETTINGS

The setting specific to the scenario an be adjusted here.

Number of Turns: The number of turns in the scenario

Victory Points: Land: The number of victory points accumulated each turn for each land square owned.

Victory Points: City: The number of victory points accumulated each turn for each city square owned.

Allow Naval Invasions: Check the box to allow naval invasions for the scenario.

4.2.3 Scenario Description: SETTINGS|SCENARIO DESCRIPTION

This allows editing the description for a scenario. Up to 256 chacacters can be used to describe the scenario. This is a free form description area, to force a carriage return type CTLR|ENTER and to force a tab tpye CTLE|TAB.

4.2.4 Players Names: SETTINGS|PLAYERS NAMES

The default names for each player can be edited here, These names can be overriden when the scenario is played.

4.2.5 Map Size: SETTINGS|MAP SIZE

The size of the map can be changed here. The maximum map size is 50 squares by 50 squares.

4.3 Other Scenario Editor Menus

The following are the additional menu selections available in the scenario editor.

FILE|NEW SCENARIO: Reset the scenario editor. This is the state when the scenario editor is started.

FILE|LOAD SCENARIO: Load an existing scenario for editing. A dialog box will appear with a list of all scenarios, enter or select the scenario desired.

FILE|SAVE SCENARIO: Save the current scenario to a file. A dialog box will appear, Enter an eight character discription of the scenario being saved. These eight characters plus .scn will be the actual file name used to save the scenario.

FILE|PLAY SCENARIO: Play the scenario as it currently exists in the editor. This is useful for trying out changes to a scenario or bringing a scenario into the editor to give a player a handicap and then playing that scenario.

FILE|EXIT EDITOR: Selecting this will rexit the editor.

MAP|WORLD VIEW: This operates the same as during a game.

HELP: The online help has not yet been implemented.

HELP|ABOUT: This menu shows the game credits.

5.0 General Strategy and Tactics

A wide variety of strategies exist in Pendulous. Some you will find and employ successfully others not so successfully. The effectiveness of a strategy largely depends on the scenario being played and the strategies employed by your opponents. My only intention here to describe some very general ideas.

5.1 Defending

As defender generally you will start with a larger number of squares and/or cities. You must atempt to put off the attack(s) long enough to give you victory. Experiment with these ideas as a defender:

Strongly defend only your cities allowing the larger land masses to be taken.

Constantly hassle the attacker by preforming attacks of your own against his cities.

Hold forces and resource for a number of turns forcing the attacker to become cautious else become cut from supply.

Manage to always get land and armies that are unsupplied back into supply, if done properly the game will be over before the attaker has really accomplished much.

Make only high percentage attacks thus building large numbers of armies on the map.

5.2 Attacking

As attacker you will generally start with fewer land and/or city squares, thus you must gain land and cities to win. As attacker, time is against you. Here are some general attacter strategies.

Drive and attempt to capture every enemy city not worring about the land squares. If all cities are captured the opponent is out of the game but still may win if enough victory points were accumulated.

Carefully get chunks of the enemy out of supply each turn.

Overrunning attacks, almost never stopping to drive deeper into enemy territory each turn.

Make use of large number of resources by attacking the defenders weaker areas leaving the defenders armies useless.

Make high percentage attacks building up a large number of on map armies.

6.0 Designing Your Own Computer Player

Computer players are implemented as a DLL which gets serviced by the main Pendulous application. The computer DLLs and application both access the support DLL for general purpose functionality. Because of this modular implementation additional computer players can be added to the game at any time. In addition, effort has been given which will allow other programmers to create their own computer players.

All mechanisms are in place to allow anyone to create their own computer players. However, creating a useful computer player for this game is a VERY difficult task. I will distribute information for creating your own computer player DLL in the registered version of Pendulous.

7.0 Designer Notes

Pendulous may look and feel like a new and unique strategy experience, however its roots indirectly extend very deep in history. Most new ideas are really combinations of older concepts and ideas, Pendulous is no different. I can point to some very specific experiences in my game playing history which influence this game. Two major influences stand out. The first being many teenage years playing complex war simulation board games. The other being my introduction to the board game GO in 1985 while in Japan on business. Now that Pendulous is complete I see its roots in these two game experiences.

8.0 Credits

Designed and Programmed: Ken Carlino

Playtesting: Ken Carlino, Jeff Siebold, and Mark Janovics