



**Deck Sorcery**  
**with The Sunday Lunatics**  
**User Guide**

Brought to you by:



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## System Overview

Deck Sorcery is a web based platform for Hearthstone card deck generation. The platform is targeted at Hearthstone players. Users are able to perform the tasks listed below:

User
<div>Deck Building:<ul style="list-style-type: none"><li>• Generate optimized deck from User Defined Deck</li><li>• Generate optimized deck from All Hearthstone Cards</li></ul>User's Card Library:<ul style="list-style-type: none"><li>• View User's Library</li></ul>Hearthstone Card Library:<ul style="list-style-type: none"><li>• View Cards by Hero Type</li></ul></div>

## User Interface

Flask is used as Deck Sorcery's front end user interface. The backend bespoke web application is coded in Python. The results are sent to Flask to display the results onto the web interface.

## Requirements

Deck Sorcery supports the following web browsers:

- Internet Explorer 11
- Microsoft Edge 39 and above
- Firefox 53 and 52 ESR and above
- Google Chrome Version 59 and above
- Safari Version 10 and above

## Deployment

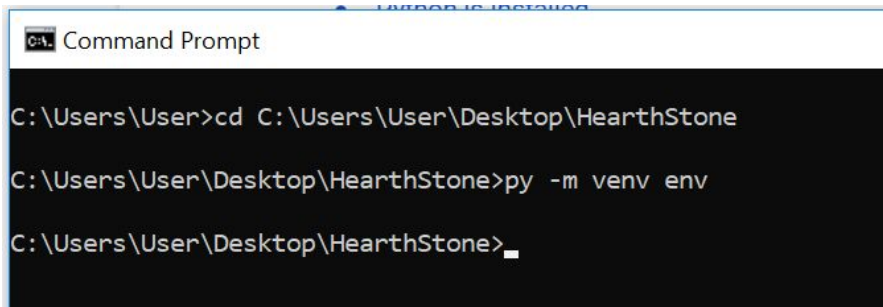
To run Deck Sorcery locally on a Windows Machine

Prerequisites:

- Python is Installed
- Pip is installed

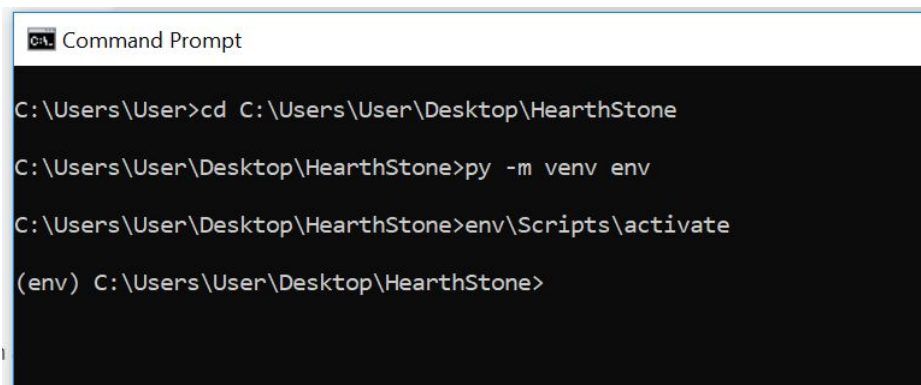
1. Open Command Prompt
2. `$ git clone //todo:git_url`
3. Unzip folder

4. `$ cd folder_location/`
5. Input `py -m venv env` and press enter



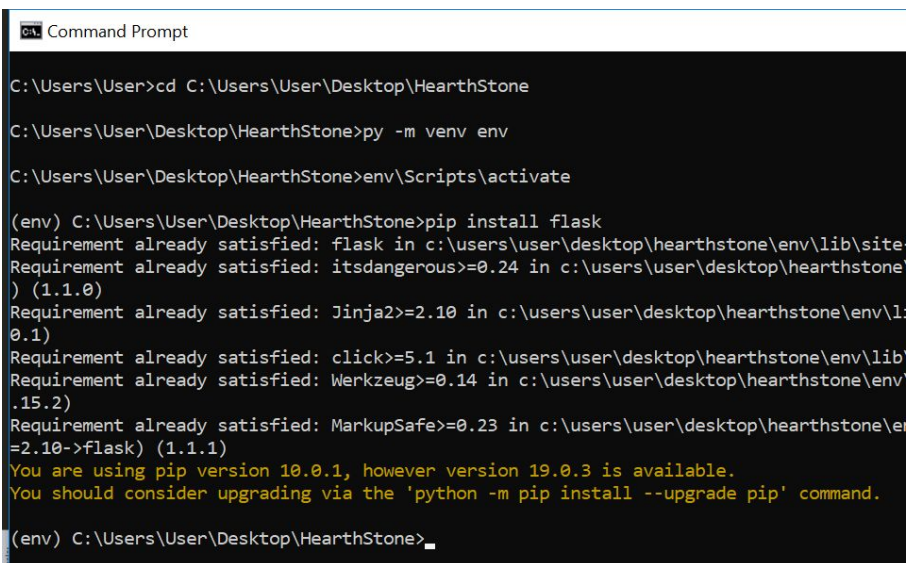
```
C:\Users\User>cd C:\Users\User\Desktop\HearthStone  
C:\Users\User\Desktop\HearthStone>py -m venv env  
C:\Users\User\Desktop\HearthStone>_
```

6. Input `env\Scripts\activate` and press enter



```
C:\Users\User>cd C:\Users\User\Desktop\HearthStone  
C:\Users\User\Desktop\HearthStone>py -m venv env  
C:\Users\User\Desktop\HearthStone>env\Scripts\activate  
(env) C:\Users\User\Desktop\HearthStone>
```

7. Input `pip install flask` and press enter



```
C:\Users\User>cd C:\Users\User\Desktop\HearthStone  
C:\Users\User\Desktop\HearthStone>py -m venv env  
C:\Users\User\Desktop\HearthStone>env\Scripts\activate  
(env) C:\Users\User\Desktop\HearthStone>pip install flask  
Requirement already satisfied: flask in c:\users\user\desktop\hearthstone\env\lib\site-packages (1.1.0)  
Requirement already satisfied: itsdangerous>=0.24 in c:\users\user\desktop\hearthstone\env\lib\site-packages (1.1.0)  
Requirement already satisfied: Jinja2>=2.10 in c:\users\user\desktop\hearthstone\env\lib\site-packages (2.10.1)  
Requirement already satisfied: click>=5.1 in c:\users\user\desktop\hearthstone\env\lib\site-packages (8.0.3)  
Requirement already satisfied: Werkzeug>=0.14 in c:\users\user\desktop\hearthstone\env\lib\site-packages (2.1.2)  
Requirement already satisfied: MarkupSafe>=0.23 in c:\users\user\desktop\hearthstone\env\lib\site-packages (2.1.0)  
(env) C:\Users\User\Desktop\HearthStone>_
```

8. Set the Flask App, Input `set FLASK_APP=main.py` and press enter

```
(env) C:\Users\User\Desktop\HearthStone>set FLASK_APP=main.py
```

9. Install the required packages

- a. `pip install sklearn`
- b. `pip install deap`

10. Run the Flask App, input `flask run` and press Enter

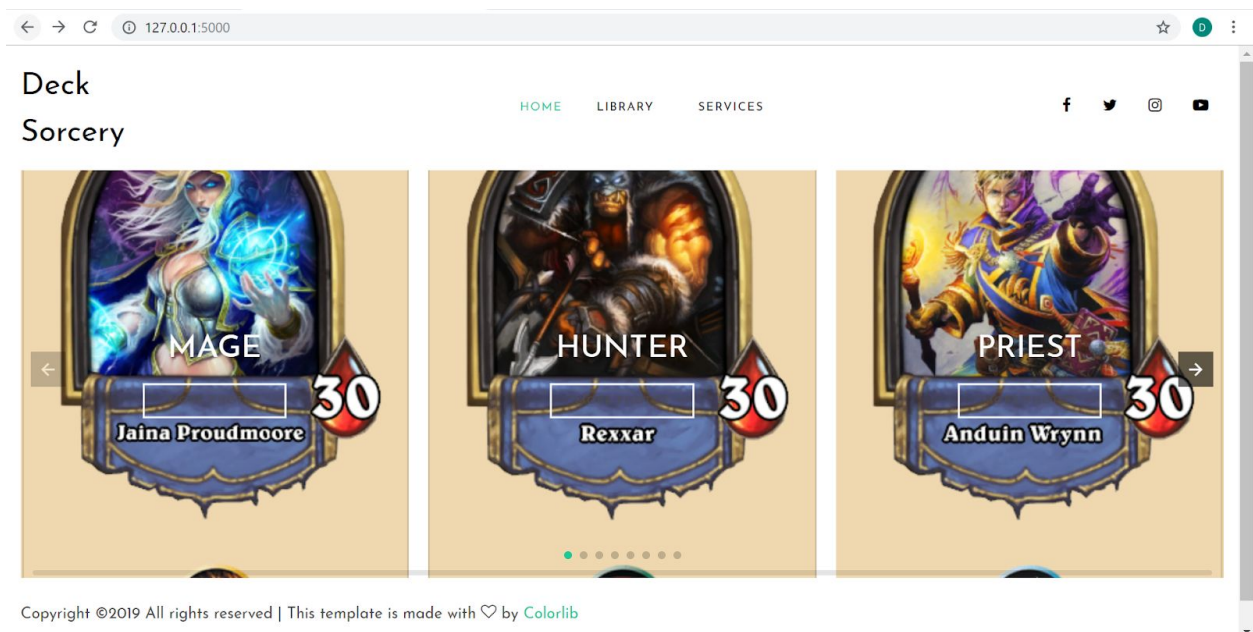
```
(env) C:\Users\User\Desktop\HearthStone>flask run
* Serving Flask app "main.py"
* Environment: production
WARNING: Do not use the development server in a production environment.
Use a production WSGI server instead.
* Debug mode: off
{'', 'PIRATE', 'MECHANICAL', 'MURLOC', 'ALL', 'ELEMENTAL', 'DRAGON', 'DEMON', 'BEAST', 'TOTEM'}
```

11. Navigate to the URL listed in Command Prompt

```
* Running on http://127.0.0.1:5000/ (Press CTRL+C to qu
```

## Get Started

Open up your preferred browser and go to the URL "http://127.0.0.1:5000/" as shown below:

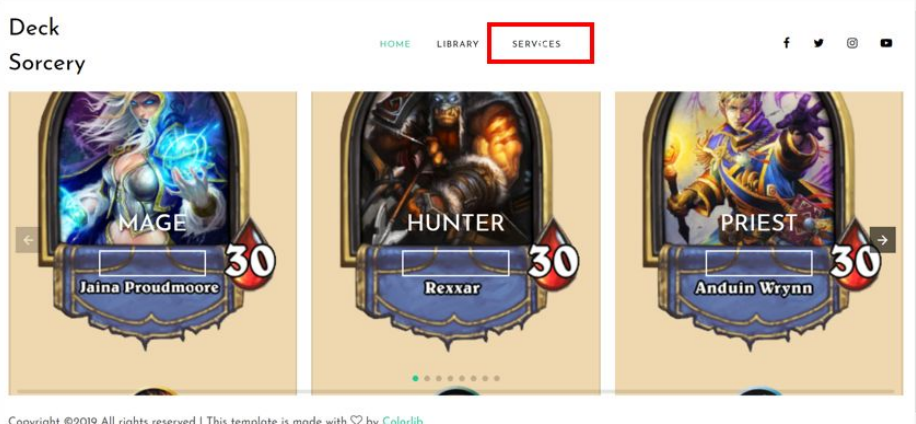
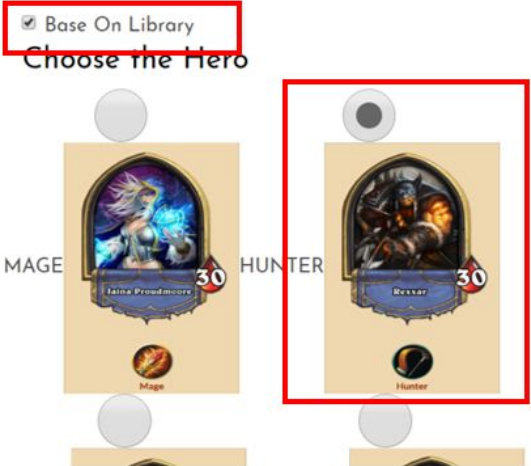


## Walkthrough

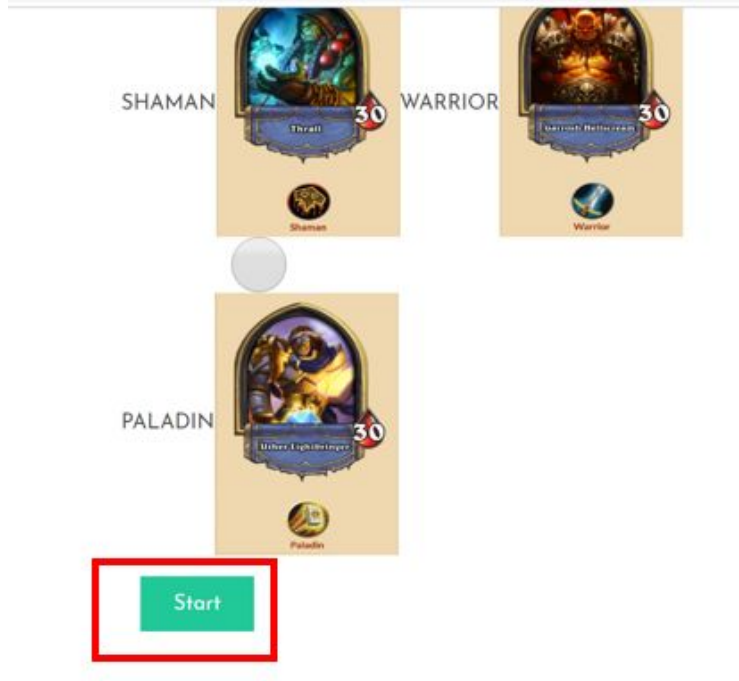
The following section will provide a step-by-step walkthrough of the various actions which players can perform within Deck Sorcery

### Deck Building:

Generate optimized deck from User Defined Deck

<p>1. In the main page, select 'SERVICES'</p>	 <p>Copyright ©2019 All rights reserved   This template is made with ♥ by Colorlib</p>
<p>2. Check the 'Base on Library' Checkbox</p> <p>3. Select the desired Hero Type of the Deck</p>	<h2>Generate My Deck</h2> <p><input checked="" type="checkbox"/> Base On Library</p> <p>Choose the Hero</p> 

4. Scroll down the webpage and select 'Start'



5. During the Deck Building process, the Screen will be blank. This is expected.
6. You can monitor the progress of the deck building in the command prompt window.

Deck  
Sorcery

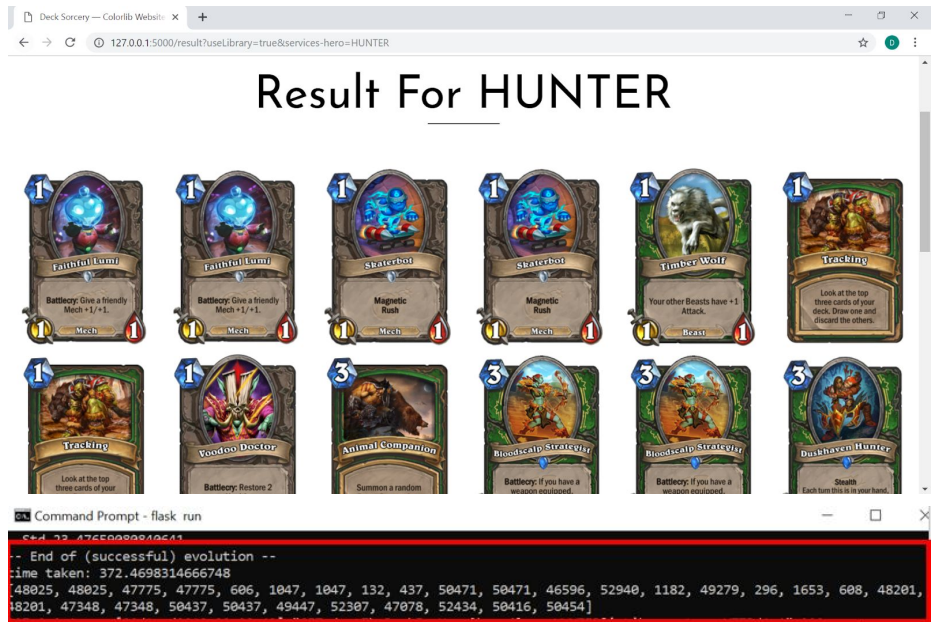
[HOME](#) [LIBRARY](#) [SERVICES](#)

## Result For HUNTER

```
Command Prompt - flask run
Evaluated 392 individuals
Min -100.0
Max 55.53314035987604
Avg 52.63027075095348
Std 20.858633540453287
-- Generation 58 --
offspring length: 600
Evaluated 355 individuals
Min -100.0
Max 55.53314035987604
Avg 53.66581859677545
Std 16.695888893112937
-- Generation 59 --
offspring length: 600
Evaluated 373 individuals
Min -100.0
Max 55.532991798566144
Avg 53.678331573469215
Std 16.69716088099014
-- Generation 60 --
offspring length: 600
Evaluated 386 individuals
Min -100.0
Max 55.532991798566144
Avg 53.15132792896227
Std 18.8997448829775
-- Generation 61 --
offspring length: 600
Evaluated 362 individuals
```

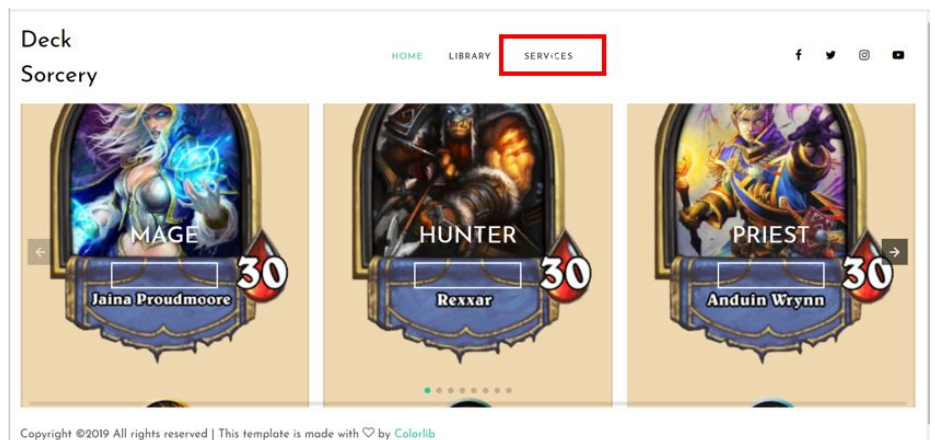


7. The generated deck will be displayed.
8. You can view the time taken to generate the deck and the Card IDs displayed in the command prompt window.

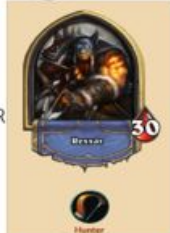



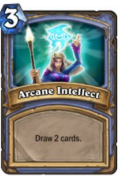

## Generate optimized deck from All Hearthstone Cards

1. In the main page, select 'SERVICES'





<div data-bbox="250 239 467 562"><div>2. Select the desired Hero Type of the Deck</div><div>3. Leave the 'Base on Library' checkbox unchecked</div></div>	<div data-bbox="540 216 1325 919"><div>Generate My Deck</div><div><div><div>Base on Library</div><div>Choose the Hero</div><div><div><div>MAGE</div><div><div>30</div><div>Mage</div></div></div><div><div>HUNTER</div><div><div>30</div><div>Hunter</div></div></div><div><div>PRIEST</div><div><div>30</div><div>Priest</div></div><div><div>WARLOCK</div><div><div>30</div><div>Warlock</div></div></div></div></div></div></div></div>
<div data-bbox="250 957 467 1096"><div>4. Scroll down the webpage and select 'Start'</div></div>	<div data-bbox="769 963 1360 1621"><div><div><div>SHAMAN</div><div><div>30</div><div>Shaman</div></div></div><div><div>WARRIOR</div><div><div>30</div><div>Warrior</div></div></div><div><div>PALADIN</div><div><div>30</div><div>Paladin</div></div></div><div><div>Start</div></div></div></div>
<div data-bbox="250 1715 467 1854"><div>5. During the Deck Building process, the</div></div>	

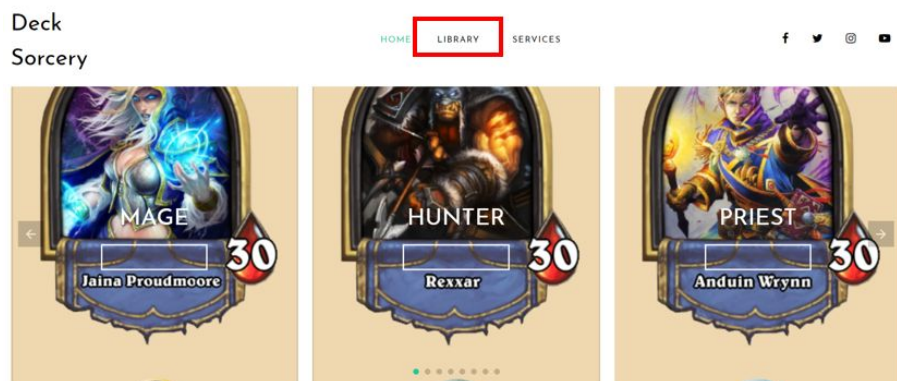
<p>Screen will be blank. This is expected.</p> <p>6. You can monitor the progress of the deck building in the command prompt window.</p>	<div data-bbox="509 226 1421 1136"><div><div>Deck</div><div>Sorcery</div><div>HOME LIBRARY SERVICES</div></div><div>Result For MAGE</div><div><div>Command Prompt - flask run</div><div>offspring length: 600 Evaluated 374 individuals Min -100.0 Max 52.47757514253918 Avg 48.82766118336131 Std 23.004597887080088 -- Generation 153 -- offspring length: 600 Evaluated 335 individuals Min -100.0 Max 52.47757514253918 Avg 48.57535671275007 Std 23.791877576928535 -- Generation 154 -- offspring length: 600 Evaluated 356 individuals Min -100.0 Max 52.47757514253918 Avg 48.59100831105727 Std 23.794313136493734 -- Generation 155 -- offspring length: 600 Evaluated 349 individuals Min -100.0 Max 52.47757514253918 Avg 50.118102505175756 Std 18.52597497810502 -- Generation 156 -- offspring length: 600</div></div></div>
<p>7. The generated deck will be displayed.</p> <p>8. You can view the time taken to generate the deck and the Card IDs displayed in the command prompt window.</p>	<div data-bbox="509 1176 1421 1619"><div><div>Deck</div><div>Sorcery</div><div>HOME LIBRARY SERVICES</div><div>f t i y</div></div><div>Result For MAGE</div><div><div><div>1</div><div></div><div>1</div></div><div><div>1</div><div></div><div>1</div></div><div><div>1</div><div></div><div>1</div></div><div><div>3</div><div></div><div>3</div></div><div><div>3</div><div></div><div>3</div></div><div><div>3</div><div></div><div>5</div></div></div></div>

```
Command Prompt - flask run
offspring length: 600
Evaluated 355 individuals
Min -100.0
Max 52.51135650488668
Avg 49.373167282999596
Std 21.339928256343825
-- Generation 2000 --
offspring length: 600
Evaluated 367 individuals
Min -100.0
Max 52.51135650488668
Avg 49.12000890982716
Std 22.19245458111445
-- End of (successful) evolution --
time taken: 553.8293044567108
[50381, 52991, 52639, 555, 555, 1653, 1653, 50084, 49045, 49045, 995, 77, 52415, 50086, 50731, 47346, 47346, 47924, 4869
3, 47055, 52306, 51816, 51816, 48198, 53249, 52417, 52870, 52640, 52902, 52902]
127.0.0.1 - - [20/Apr/2019 22:24:49] "GET /getTheDeckForHero?heroClass=MAGE&isLibrary= HTTP/1.1" 200 -
127.0.0.1 - - [20/Apr/2019 22:24:49] "GET /static/images/995.png HTTP/1.1" 200 -
127.0.0.1 - - [20/Apr/2019 22:24:49] "GET /static/images/52415.png HTTP/1.1" 200 -
127.0.0.1 - - [20/Apr/2019 22:24:49] "GET /static/images/50731.png HTTP/1.1" 200 -
127.0.0.1 - - [20/Apr/2019 22:24:49] "GET /static/images/47346.png HTTP/1.1" 200 -
127.0.0.1 - - [20/Apr/2019 22:24:49] "GET /static/images/47924.png HTTP/1.1" 200 -
127.0.0.1 - - [20/Apr/2019 22:24:49] "GET /static/images/52306.png HTTP/1.1" 200 -
127.0.0.1 - - [20/Apr/2019 22:24:49] "GET /static/images/51816.png HTTP/1.1" 200 -
127.0.0.1 - - [20/Apr/2019 22:24:49] "GET /static/images/53249.png HTTP/1.1" 200 -
127.0.0.1 - - [20/Apr/2019 22:24:49] "GET /static/images/52417.png HTTP/1.1" 200 -
127.0.0.1 - - [20/Apr/2019 22:24:49] "GET /static/images/52870.png HTTP/1.1" 200 -
127.0.0.1 - - [20/Apr/2019 22:24:49] "GET /static/images/52902.png HTTP/1.1" 200 -
```

User's Card Library:

View User's Library

1. In the Home screen, select 'LIBRARY'.



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2. All cards in the User's Library will be displayed.

## My Library(total 4 cards)



## Hearthstone Card Library:

### View Cards by Hero Type

2. In the Home screen, scroll through the Hero types using the left and right arrows or the navigation panel below.

Deck  
Sorcery

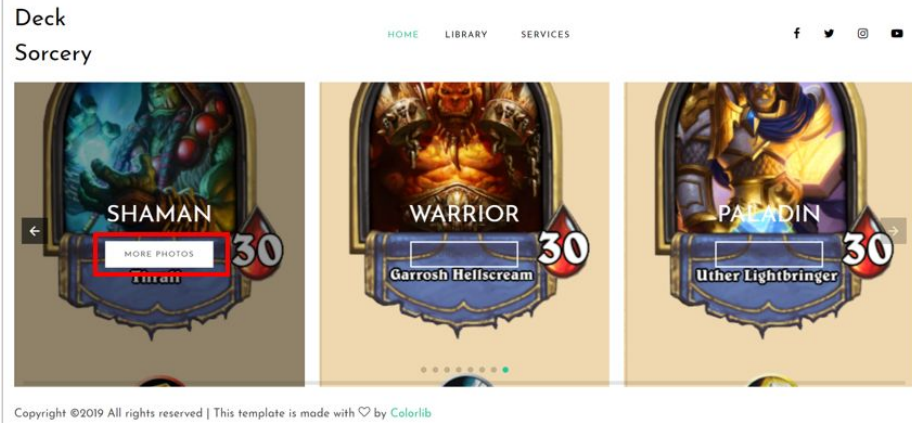
HOME LIBRARY SERVICES

f t i y



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3. Hover over the Hero type and select 'MORE PHOTOS'



4. All cards belonging to the Hero type selected will be displayed

