SGSEAM Assessment Plan for Makahiki

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Contents

This document describes the SGSEAM assessment plan for Makahiki. It is the deliverable for the first step of the SGSEAM when applying to Makahiki framework. It first identifies the stakeholders, determines the appropriate assessment approaches according to the available resources, choose assessment participants, and creates the assessment schedule.

1   Identify SGSEAM Stakeholders in Makahiki

The first step in SGSEAM assessment plan is to identify the stakeholders in Makahiki. Table 1 listed the identified stakeholders who use the Makahiki framework.

Stakeholder class	Tasks	Role
Player	Participate in the Makahiki games	Students living in the residential halls
System admin	Install Makahiki software, monitor and scale the system, backup, patch maintenance	IT staffs
Game designer	Design the content, configure suitable games and mechanics	Challenge organizers
Game manager	Manage the game during the period of game play.	Challenge organizers
Developer	Develop customization, extend and enhance the game and framework.	Makahiki developers

Table 1: SGSEAM Stakeholders

2   Determine SGSEAM Approaches for Makahiki

The second step in SGSEAM plan is to determine the assessment approach. As described in SGSEAM, approaches include both *in-vivo* and *in-vitro* assessments. The *in-vivo* approaches, such as pre-post test, in-game surveys and post-hoc interviews, assess the real world instance of the game. The *in-vitro* approaches use in-lab experiments in a simulated environment. Different assessment approaches will have different levels of rigor or validity. When applying SGSEAM in Makahiki, I used the real world Makahiki instances as the in-vivo approaches which includes pre-post effectiveness study for player assessment, post-hoc interview for game administrator and game designer.

In addition to real world instances assessment, I also implemented the in-vitro assessment approach using in-lab experiments. In Spring 2013, Professor Philip Johnson at the Information and Computer Science Department of University of Hawaii used Makahiki to teach a course in serious game development. The students were seniors or graduate students majoring in computer science related fields. During the course, the students installed Makahiki, designed a serious game instance with Makahiki, and developed an enhancement to the Makahiki system. The participation was voluntary. This is considered as an in-lab experiment since they are evaluating Makahiki in a class setting and using Makahiki in the development environments.

Table 2 lists the SGSEAM approaches that are used to assess the strengths and weaknesses of Makahiki from different stakeholders' view.

Stakeholder	Assessment approaches	Expected Outcomes
Player	Pre-post effectiveness study	Determine effectiveness in energy literacy and resource usage reduction
	Self-reported effectiveness survey	Determine self-reported effectiveness in behavior change and awareness
	Self-reported usability survey	Identify problem areas in game interface
	Engagement metrics	Determine the extent of engagement
System admin	Post-hoc admin interview	Determine strengths and weaknesses in system install and maintenance
	In-lab system admin study	
Game designer	Post-hoc designer interview	Determine strengths and weaknesses in facilitating the game design process
	In-lab game design study	
Game manager	Post-hoc manager interview	Determine strengths and weaknesses in managing the game
Developer	In-lab game development study	Determine strengths and weaknesses in developing system enhancement

Table 2: SGSEAM approaches

The following sections describe the assessment approaches in details.

2.1 Player Assessment Plan

I plan to use the real-world Makahiki instances (UHM KC 2011, 2012, 2014) at the University of Hawaii at Manoa to study the player's experience with the Makahiki framework. There will be over 1000 eligible players for each of these instances. The players are first year college students living in four similar structured residence halls in close vicinity. There are smart electrical meters installed in these residence halls.

To assess the effectiveness of the framework for designing games that improve player literacy in sustainability, we will conduct two energy literacy surveys, one before the challenge (pre-game) and one after the challenge (post-game). SurveyGizmo will be used to create the surveys which consists of the set of sustainability literacy and behavior questionnaires. The response from the two surveys will be analyzed to provide insight about the player's literacy and behavior change.

To assess the effectiveness of the framework for designing games that produce positive change in sustainability behaviors, we will record and analyze the energy consumption data before, during and after the challenge. Before the challenge, an energy usage baseline will be established. The energy consumption data will be examined to understand any usage pattern or reduction during and after the challenge. We will also conduct an in-game self-reported behavior change survey. The survey will ask questions about player interests in sustainability prior to and after the game, as well as any perceived behavior changes when playing the game.

To assess the usability of the game produced by the Makahiki framework, we will conduct an in-game usability survey. The survey will ask questions about the players' experience with respect to the user interface of the game. The response from the survey will be analyzed to provide insight about the game usability.

In addition to the surveys and energy data measurement, the following engagement metrics will be calculated based on the game and log data to assess the engagement level of the instance:

- Participation rate

- Number of players per day

- Play time per day

- Submissions per day

- Social interactions per day

- Website errors per day

2.2 System Admin Assessment Plan

I plan to use two approaches to assess the system admin's experience: One is an in-lab experiment, the other is interviews with the system admin of a real world Makahiki instance.

I will conduct an in-lab experiment with the students in the ICS691 (a serious game development class in the Department of Computer Science at UHM) in Spring 2013. The students will be tasked with installing the Makahiki system into their local computers as well as the cloud environment. In order to understand how much time it takes to install the Makahiki and what problems might be encountered, I designed a Google form which details the steps for installing Makahiki both locally and in the cloud. I will ask students to use this form to record the time they spent and the problems they encountered during each step.

Figure 1 illustrates a partial google form used for Makahiki system admin assessment. Appendix B includes the complete google form.

The students will also be asked to provide feedback about their installation experiences in the form of a blog post. In the blog post, I will ask them to discuss the following topics:

- What is the most difficult step during installation?

- What problems did you encounter during the installation?

- Have you install any database, web server or similar server products prior to this assignment? Are those installations for development or production purpose?

- If you have experience installing other servers before, How does your prior experience of installing other servers compare to the installation of Makahiki?

- What could be improved about the Makahiki installation process?

- Compare your experience of installing Makahiki in Heroku with installing it locally,

The data collected from the Google form responses and the blog posts from the students will be analyzed to gain insight into how easy or difficult it is to install Makahiki.

In order to gain insight into the experience of a real world system admin who uses the Makahiki, I will perform interviews to the system admin of the 2012 Hawaii Pacific University (HPU) challenge. The interview questions will include:

- How much time did you spend to install the Makahiki system?

Figure 1: Makahiki Developer assessment Form

- How much time did you spend to maintain the Makahiki system, including backup, monitoring?

- What problems did you encounter during your installation and administering the Makahiki system?

I will also collect any email exchanges with the system admin regarding the installation process and maintenance of Makahiki system. Both interview and email exchange data will be analyzed to understand the system admin's experiences with Makahiki.

2.3 Game Designer Assessment Plan

Similar to Makahiki system admin assessment, I plan to use two approaches to assess the game designer's experience: One is an in-lab experiment, the other is interviews with the game designers of real world Makahiki instances.

I will conduct an in-lab experiment with the same students in the ICS691 class. The students will be tasked to design a Kukui Cup-like serious game using Makahiki. I designed another Google form with the detailed steps for designing a game in Makahiki. I will ask students to follow these

steps and record their time and problems encountered during their designing process. Appendix B has the complete Google form for the steps the students need to follow.

In addition, the students will be asked to provide feedback about their game design experiences in the form of blog posts that discussed the following topics:

- What is the most difficult step during Challenge Design?

- What problems did you encounter while designing the challenge?

- What could be improved in the Makahiki Challenge Design process?

The data collected from the responses of the game design Google forms and the blog posts from the students will be analyzed to gain insight into the game design experiences with Makahiki.

In order to gain insight into the experience of real world game designers who use Makahiki to design serious games, I will perform interviews with the real-world game designers of the 2012 Hawaii Pacific University challenge and the 2012 East West Center challenge. I will asked them about their experiences using the Makahiki game design admin interface to design their sustainability serious games. The interview questions will include:

- How much time did you spend to configure the challenge global settings?

- How much time did you spend to design the individual games?

- What problems did you encounter?

- Did you find it difficult to design a specific game? which one, what was difficult?

- What did you like the least when using the system?

I will also collect any email exchanges with the game designers regarding the game design process. Both the interview and email exchange data will be analyzed to gain insight into the game design experiences with Makahiki.

2.4   Game Manager Assessment Plan

I plan to perform interviews with the real world game managers of the 2012 Hawaii Pacific University challenge and 2012 East West Center challenge to study the experience of game management using Makahiki. The interview questions will include:

- How much time did you spend to approving the action submissions?

- How much time did you spend to monitoring the game status?

- What problems did you encounter?

- Did you find it difficult to manage? what was difficult?

- What did you like the least when using the system?

I will collect any email exchanges with the game managers. The data collected from the interviews and email exchanges will be analyzed to gain insight into the game managing experiences with Makahiki.

2.5   Developer Assessment Plan

I plan to perform an in-lab game development study experiment with the students participating in the ICS691 serious game development class in Spring 2013. The students will be tasked with developing an enhancement to the Makahiki instance. This will involve setting up the development environment, following the tutorial to create the "Hello world" widget using Makahiki, and finally, developing an enhancement which extends the functionality of the Makahiki system. The enhancement is specified in 5 development tasks.

The students will be asked to submit their development source code to the public source code repository (Github) and write a blog post to discuss their efforts in completing the development activities. The blog post should discuss the following topics:

- What part is complete?

- What part is not complete?

- Which parts you found easy or hard to complete?

- What problems did you encounter while developing this enhancement tasks?

- What is your recommendations for the framework to improve development supports.

I will review their source code to compare their code to the reference implementation, analyze the blog posts, as well as any email correspondences regarding the problems encountered during the development.

3   Choose Assessment Participants

After the assessment approaches are determined, the next step in SGSEAM is to identify the assessment participants for the different stakeholders. Table 3 lists the participants for assessing the Makahiki framework using SGSEAM.

Stakeholder class	Person(s)	Organization
Player	All eligible players in the UH KC instance	UHM
System admin	ICS691 students, system admin for HPU instance	UHM, HPU
Game designer	ICS691 students, game designers for HPU & EWC instance	UHM, HPU, EWC
Game manager	ICS691 students, game managers for HPU & EWC instance	UHM, HPU, EWC
Developer	ICS691 students	UHM

Table 3: SGSEAM Participants for Makahiki

4 Create Assessment Schedule

After determining what the assessment approaches and who the participants are, the next step is to create the assessment schedule. The schedule for applying SGSEAM to Makahiki is shown in Table 4.

Time	Task	Assessment
Fall 2011	Pre-post and in-game surveys, engagement metrics collection with UHM 2011 KC	Player experience
2012	In-game survey, engagement metrics collection with UHM 2012 KC	Player experience
Fall 2012	Interview with HPU KC sysadmin	System admin experience
Fall 2012	Interview with HPU & EWC KC game designers	Game designer experience
Fall 2012	Interview with HPU & EWC KC game managers	Game manager experience
Spring 2013	In-lab installation experiment with UHM ICS691 students	System admin experience
Spring 2013	In-lab game design experiment with UHM ICS691 students	Game designer experience
Spring 2013	In-lab game development experiment with UHM ICS691 students	Developer experience
Spring 2014	in-game survey with UHM 2014 KC	Player experience

Table 4: SGSEAM Assessment Schedule for Makahiki

A Questionnaire for SGSEAM In-Game Survey

This appendix details the questionnaire of the in-game surveys as part of the SGSEAM assessment for the player stakeholder experiences. The in-game surveys were made available to players as an action in the Smartgrid game during the UHM Kukui Cup challenges. The surveys were hosted in the SurveyGizmo website. The survey started with the informed consent via inputting the email address.

The questions were prefaced with the following instructions: "The goal of this survey is to learn about your experiences during the Kukui Cup. Please answer honestly, we want to know how you really feel."

This appendix only lists the questions that are related to the Makahiki framework.

A.1 UHM 2011 in-game survey questionnaire

1. Prior to playing the Kukui Cup, were you interested in energy conservation?
2. Has the Kukui Cup increased your interest in energy conservation and sustainability?
3. Have you made any commitments through the website during the game?

   ○ Yes

   ○ No

[If Yes] Did you change your behavior during the competition based on the commitment(s) you made?

   ○ Yes

   ○ No

   ○ Not sure

4. How much time do you usually spend on the following activities? [Options for each activity:]

   1. 3 or more hours a day

   2. about 1 hour a day

   3. about 1 hour a week

   4. 1 hour a month or less

   5. never

List of activities:

- Playing games on a laptop computer

- Playing games on a game console (Xbox, PS3, Wii)

- Playing games on a handheld game device (DS3, PSP)

- Playing games on a mobile phone

- Checking Facebook

- Checking Twitter

5. Rate how much you agree with each statement below: [Each statement was ranked on the following Likert-type scale:]

1. Strongly disagree

2. Disagree

3. Neutral

4. Agree

5. Strongly agree

6. Not Applicable

Statements:

- It was easy to find what I was looking for in the website.

- The website was responsive. I did not wait too long after I clicked on something.

- The website provided adequate help in teaching me how to play the game.

- I understood the rules of the game and how to play.

6. What did you like about the website?
7. What did you find confusing about the website?
8. If you could add or change something in the website, what would that be?
9. How would you describe the Kukui Cup? (check all that apply)

□ Fun

□ Educational

□ So-so

□ Boring

□ Not useful

□ Difficult

□ Addictive

□ Other: _____

10. The Kukui Cup website shows energy data updated every 15 seconds. Did you find this helpful in conserving energy?

○ not really, updating the data daily would be enough

○ not really, updating the data hourly would be enough

○ not really, I only care about the final result of the competition

○ yes, it is helpful to see the energy usage changing in real time

11. Which of the following do you wish there were more of in the game? (choose all that apply)

☐ events

☐ excursions

☐ commitments

☐ videos

☐ social activities

☐ physical activities

☐ online activities

12. On average, how many minutes a day did you spend on the Kukui Cup website?

13. If you were able to play the Kukui Cup next year, would you?

○ Yes

○ I enjoyed it, but I wouldn't play again

○ I didn't enjoy it, and I wouldn't play again

○ No, because: _____

14. How likely would you be to recommend playing the Kukui Cup to a first year student in Fall 2012?

○ Very Likely

○ Likely

○ Neutral

○ Unlikely

○ Very Unlikely

○ Not Applicable

15. Is there anything else you would like to tell us about your experience playing the Kukui Cup that this survey didn't ask?

A.2 UHM 2012 in-game survey questionnaire

1. Prior to playing the Kukui Cup, were you interested in energy conservation? Please answer with a number in a Likert scale from 1 to 7, where 1 is "Very Interested" and 7 is "Not at all Interested".

      Very Interested   1   2   3   4   5   6   7   Not at all Interested

2. Has the Kukui Cup increased your interest in energy conservation and sustainability? If so, how?

3. Did you change your behavior during the competition based on the commitment(s) you made? If so, how?

4. The Kukui Cup website shows real-time energy data for your team. Did you find this helpful in conserving energy?

5. Do you find the Kukui Cup website responsive? In other words, did pages load quickly?

- ○ Extremely quickly

- ○ Quickly

- ○ OK

- ○ Slow

- ○ Very slow

6. Was it easy to understand how to unlock new activities and levels?

- ○ Yes

- ○ No

7. What was the thing you liked most about the Kukui Cup so far?

8. What was the thing you liked the least about the Kukui Cup so far?

9. If you were able to play the Kukui Cup next year, would you? Please answer with a number in a Likert scale from 1 to 7, where 1 is "Absolutely I would" and 7 is "Definitely Not".

      Absolutely I would   1   2   3   4   5   6   7   Definitely Not

10. Did you try accessing the application from a smart phone? If so, please tell us what kind of phone you used and whether or not you encountered any problems.

11. How likely would you be to recommend playing the Kukui Cup to a first year student in Fall 2013? Please answer with a number in a Likert scale from 1 to 7, where 1 is "Likely" and 7 is "Unlikely'.

      Likely   1   2   3   4   5   6   7   Unlikely

12. What did you find confusing about the website (if anything)?

13. What do you consider to be the single most important thing for us to improve in the website?

14. Is there anything else you would like to tell us about your experience playing the Kukui Cup that this survey didn't ask?

A.3 UHM 2014 in-game survey questionnaire

1. It was easy to find what I was looking for in the website.

- ○ Strongly disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly agree

○ Not Applicable

2. The website was responsive. In other words, did pages load quickly?

○ Strongly disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly agree

○ Not Applicable

3. The website provided adequate help in teaching me how to play.

○ Strongly disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly agree

○ Not Applicable

4.If you were able to play the Kukui Cup next year, would you?

○ Strongly disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly agree

○ Not Applicable

5. This is something my friends should participate in.

○ Strongly disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly agree

○ Not Applicable

6. I understood how to play

○ Strongly disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly agree

○ Not Applicable

7. What did you like the most about the game?
8. What did you found confusing about the website?
9. What issues did you have while using the game?
10. What was the thing you liked the least about the game?
11. What can we do to improve the game?
12. When you logged in for the first time, you are prompted with a series of screens to set up your profile. What did you think of this "first login sequence"?
13. After finishing the first login sequence, the application took you to the home page. Did you know what to do next?
14. Is there anything else you would like to tell us about your experience playing the Kukui Cup that this survey didn't ask?

B Google Forms for SGSEAM In-lab Experiments

This appendix lists the Google forms that were used in the SGSEAM in-lab experiment approach for system admin and game designer assessments. They were presented to the students in the ICS 691 class at the University of Hawaii at Manoa in Spring 2013 as parts of their class assignments. The students were voluntarily participated in these assessment experiments.

B.1 System admin Assessment

There are two google forms to assess the system admin's experience with the Makahiki framework regarding the installation of Makahiki and its software dependencies, based on Makahiki documentation provided online. One google form is the Local installation log to assess the local installation of Makahiki on their personal computers or on a virtual machine created on their personal computers, the other is the Heroku installation log to assess the cloud installation of Makahiki on the Heroku environment.

B.1.1 Makahiki Local Installation Google Form

Please follow the steps outlined in this form to install Makahiki locally (including Virtualbox Linux Guest) and log the time you spent for each step. Please choose the closest value from the list that best matches the time you spent during the installation.

Thank you!

* Required

2.1.1.1.1.2. Install Python *

Complete the "Install Python" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#install-python,

record the time you spent for this section only:

- ○ 0 minute (come with the OS install)
- ○ 5 minutes
- ○ 10 minutes
- ○ 30 minutes
- ○ 1+ hour

Record any problem(s) you encountered when installing Python: _____

2.1.1.1.1.3. Install C Compiler *

Complete the "Install C Compiler" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#install-c-compiler,

record the time you spent for this section only:

○ 0 minute (come with the OS install)

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem(s) you encountered when installing C compiler: _____

2.1.1.1.1.4. Install Git *

Complete the "Install Git" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#install-git,

record the time you spent for this section only:

○ 0 minute (come with the OS install)

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem(s) you encountered when installing Git: _____

2.1.1.1.1.5. Install Pip *

Complete the "Install Pip" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#install-pip,

record the time you spent for this section only:

○ 0 minute (Already installed from previous assignments)

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem(s) you encountered when installing Pip: _____

2.1.1.1.1.6. Install Virtual Environment Wrapper *

Complete the "Install Virtual Environment Wrapper" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#install-virtual-

environment-wrapper, record the time you spent for this section only:

○ 0 minute (Already installed from previous assignments)

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record the problem you encountered when installing virtual environment wrapper:

_____

2.1.1.1.1.7. Install Python Imaging Library *

Complete the "Install Python Imaging Library" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#install-python-imaging-

library, record the time you spent for this section only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem(s) you encountered when installing Python imaging library:

_____

2.1.1.1.1.8. Install PostgreSQL *

Complete the "Install PostgreSQL" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#install-postgresql,

record the time you spent for this section only:

- ○ 5 minutes
- ○ 10 minutes
- ○ 30 minutes
- ○ 1+ hour

Record any problem(s) you encountered when installing PostgreSQL: _____

2.1.1.1.1.9. Install Memcache *

Complete the "Install Memcache" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#install-memcache,

record the time you spent for this section only:

- ○ 5 minutes
- ○ 10 minutes
- ○ 30 minutes
- ○ 1+ hour

Record any problem(s) you encountered when installing Memcache: _____

2.1.1.1.1.10. Download the Makahiki source *

Complete the "Download Makahiki source" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#download-the-makahiki-source, record the time you spent for this section only:

- ○ 5 minutes
- ○ 10 minutes
- ○ 30 minutes
- ○ 1+ hour

Record the problem you encountered when download the Makahiki source: _____

2.1.1.1.1.11. Workon Makahiki *

Complete the "Workon Makahiki" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#workon-makahiki,

record the time you spent for this section only::

- ○ 5 minutes
- ○ 10 minutes
- ○ 30 minutes
- ○ 1+ hour

Record any problem(s) you encountered when activating Makahiki virtual environment:

_____

2.1.1.1.1.12. Install required packages *

Complete the "Install required packages" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#install-required-

packages, record the time you spent for this section only:

- ○ 5 minutes
- ○ 10 minutes
- ○ 30 minutes
- ○ 1+ hour

Record any problem(s) you encountered when Installing required packages: _____

2.1.1.1.1.13. Setup environment variables *

Complete the "Setup environment variables" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#setup-environment-

variables, record the time you spent for this section only:

- ○ 5 minutes
- ○ 10 minutes

○ 30 minutes

○ 1+ hour

Record the problem you encountered when setting up environment variables: _____

2.1.1.1.1.14. Initialize Makahiki *

Complete the "Initialize Makahiki" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#initialize-makahiki,

record the time you spent for this section only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem(s) you encountered when initializing Makahiki: _____

2.1.1.1.1.15. Start the server *

Complete the "Start the server" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#start-the-server,

record the time you spent for this section only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered when starting the server: _____

2.1.1.1.1.16. Verify that Makahiki is running *

Complete the "Verify that Makahiki is running" section in Makahiki Local Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-unix.html#verify-that-makahiki-is-

running, record the time you spent for this section only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered when verifying that Makahiki is running: _____

Your UH email: * _____

B.1.2 Makahiki Heroku Installation Log

Please follow the steps outlined in this form to install Makahiki on Heroku and log the time you spent for each step. Please choose the closest value from the list that best matches the time you spent during the installation.

Thank you !

* Required

2.1.1.2.1. Install Heroku *

Complete the "Install Heroku" section in Makahiki Heroku Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-heroku.html#install-heroku,

record the time you spent for this section only:

○ 0 minute (Already installed from previous assignments)

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem(s) you encountered when installing Heroku: _____

2.1.1.2.2. Add your SSH keys to Heroku *

Complete the "Add your SSH keys to Heroku" section in Makahiki Heroku Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-heroku.html#add-your-ssh-keys-

to-heroku, record the time you spent for this section only:

○ 0 minute (Already installed from previous assignments)

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered when adding your SSH keys to Heroku: _____

2.1.1.2.3. Verifying your Heroku account *

Complete the "Verifying your Heroku account" section in Makahiki Heroku Installation Manual:
http://makahiki.readthedocs.org/en/latest/installation-makahiki-heroku.html#verifying-your-heroku-account, record the time you spent for this section only:

○ 0 minute (Already installed from previous assignments)

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered when verifying your Heroku account: _____

2.1.1.2.4. Setup Amazon S3 *

Complete the "Setup Amazon S3" section in Makahiki Heroku Installation Manual:
http://makahiki.readthedocs.org/en/latest/installation-makahiki-heroku.html#setup-amazon-s3,
record the time you spent for this section only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered when setting up S3: _____

2.1.1.2.5. Setup environment variables *

Complete the "Setup environment variables" section in Makahiki Heroku Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-heroku.html#setup-environment-

variables, record the time you spent for this section only:

- ○ 5 minutes
- ○ 10 minutes
- ○ 30 minutes
- ○ 1+ hour

Record any problem you encountered when setting up environment variables: _____

2.1.1.2.6. Download the Makahiki source *

Complete the "Download the Makahiki source" section in the Makahiki Heroku Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-heroku.html#download-the-

makahiki-source, record the time you spent for this section only:

- ○ 5 minutes
- ○ 10 minutes
- ○ 30 minutes
- ○ 1+ hour

Record any problem you encountered when download the Makahiki source: _____

2.1.1.2.7. Initialize Makahiki *

Complete the "Initialize Makahiki" section in the Makahiki Heroku Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-heroku.html#initialize-makahiki,

record the time you spent for this section only:

- ○ 5 minutes
- ○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered when initializing Makahiki: _____

2.1.1.2.8. Start the server *

Complete the "Start the server" section in the Makahiki Heroku Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-heroku.html#start-the-server,

record the time you spent for this section only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered when starting the server: _____

2.1.1.2.9. Verify that Makahiki is running *

Complete the "Verify Makahiki is running" section in the Makahiki Heroku Installation Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-heroku.html#verify-that-makahiki-

is-running, record the time you spent for this section only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered when verifying that Makahiki is running: _____

Your UH email: * _____

B.2   Game designer Assessment

There is one google form to assess the game designer's experience with the Makahiki framework
regarding the game design process using Makahiki, based on Makahiki documentation provided
online.

B.2.1   Makahiki Configuration Log Google Form

Please follow the steps outlined in this form to configure and manage Makahiki, and log the time you spent and problems encountered for each step. Record the time you actually spent doing the tasks by choosing the closest value from the list that best matches the time you spent. The Makahiki manual referenced below may use the local instance 127.0.0.1 as the example. For this assignment, you should use the Makahiki instance you deployed in Heroku instead of your local instance.

Thank you !

* Required

0. Update your Heroku Makahiki instance *

Read the "Updating your Makahiki instance" section in Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/installation-makahiki-heroku.html#updating-your-

makahiki-instance. Follow the instructions to update your Heroku instance with any changes from the Makahiki Git repository. Record the time you spent for this step only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem(s) you encountered in this step: _____

1. Getting to the challenge design page *

Read the "Getting to the challenge design page" section in Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/challenge-design.html#getting-to-the-challenge-design-

page. Then go to the challenge design setting page of your Heroku instance. Record the time you spent for this step only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem(s) you encountered in this step: _____

2. Design the global settings *

Read the "Design the global settings" section in Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/challenge-design-name-settings.html.

In your Heroku instance, change the "Name" of the challenge and the "Logo" fields to ones of your choosing. Test that your change is in effect by checking the Logo image and label at the top of any page. Record the time you spent for this step only:

- ○ 5 minutes
- ○ 10 minutes
- ○ 30 minutes
- ○ 1+ hour

Record any problem you encountered in this step: _____

3. Design the teams *

Read the "Design the teams" section in Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/challenge-design-teams-settings.html.

In your Heroku instance, add a new team called "Lehua-C" with the same group membership as the other teams in the default instance. Record the time you spent for this step only:

- ○ 5 minutes
- ○ 10 minutes
- ○ 30 minutes
- ○ 1+ hour

Record any problem you encountered in this step: _____

4. Set up users *

Read the "Set up users" section in Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/challenge-design-players-settings.html.

Add two new users of your choosing to the team "Lehua-C". Make sure you assign the players to their team by going to the user's profile link. Test your changes by logging in as one of the new players, and verifying that the player is on the right team. Record the time you spent for this step only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered in this step: _____

5. Specify the games to appear in your challenge *

Read the "Specify the games to appear in your challenge" section in Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/challenge-design-game-admin-enable-disable.html.

Disable the "Water Game", and leave the other games enabled. You should see that the "Drop Down" page disappears from the top navigation bar. Record the time you spent for this step only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered in this step: _____

6. Learn about how to design the resource goal games *

Read the "Design the Resource Goal Games" section in the Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/challenge-design-game-admin-resource-game.html.

Record any questions or confusion that arises from reading this section: _____

6.1. Configure the Energy Goal Game for your new team *

Change the energy goal setting for the team "Lehua-C" to use manual data, and specify a time for the manual data input time. Test your changes by logging in as a player of Lehua-C, then go to "Go Low" page. You should see the calendar view of the daily energy goal game instead of the stop light visualization. Record the time you spent for this step only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

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Record any problem you encountered in this step: _____

7. Learn about how to design Smart Grid Games *

Read the "Design the Smart Grid Game" section in the Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/challenge-design-game-admin-smartgrid-game.html.

Record any questions or confusion that arises from reading this section: _____

7.0. Design on paper *

The default installation defines a Smart Grid Game (SGG) with 3 levels. For this task, design a new Level 4 that extends the existing SGG. Level 4 will have a total of four actions: 3 new actions (Activity, Event, Commitment) that you create yourself, and one old action that you choose from the existing library of actions in the default installation. Design Level 4 with a 2x2 grid layout, including 2 categories of your choice. For this step, you will only design your Level 4 on a piece of paper or a spreadsheet, as described in Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/challenge-design-game-admin-smartgrid-game.html#

designing-your-smart-grid-game. Specify the unlock conditions for each action to achieve some kind of unlocking sequence("path"), such as depending on the completion of other actions. Record the time you spent in this step:

- ○ 5 minutes
- ○ 10 minutes
- ○ 30 minutes
- ○ 1+ hour

Record any problem you encountered in this step: _____

7.1. Create a Level *

Add a new level "Level 4", with priority higher than Level 3, and some unlock condition depending on some actions from Level 2. Record the time you spent for this step only:

- ○ 5 minutes
- ○ 10 minutes
- ○ 30 minutes
- ○ 1+ hour

Record any problem you encountered in this step: _____

7.2 Create a new Activity action *

Create a new activity action with your own content. Make the content meaningful. Fill in the required fields. You will also specify the level (should be level 4), category (your choice), as well as the unlock condition field, which determines the action "path" of your SGG design as described in step 7.0. Record the time you spent for this step only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered in this step: _____

7.3 Create a new Event action *

Create a new event action with your own content. Make the content meaningful. Fill in the required fields. You will also specify the level field (should be level 4), category field (your choice), as well as the unlock condition field, which determines the action "path" of your SGG design as described in step 7.0. Record the time you spent for this step only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered in this step: _____

7.4 Create a new Commitment action *

Create a commitment action with your own content. Make the content meaningful. Fill in only the required fields. You will also specify the level field (should be level 4), category field (your choice), as well as the unlock condition field, which determines the action "path" of your SGG design as described in step 7.0. Record the time you spent for this step only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered in this step: _____

7.5 Finalize the grid *

At this point, you should have created 3 new actions and put them in Level 4 of your SGG. For this step, find the final action to complete your 2x2 grid.. Go to the admin interface, find an action in the action library, and modify the level, category and unlock condition field according to your SGG design. Play-test your grid by logging in as normal player, go to the "Get Nutz" page, unlock Level 4 and all actions in Level 4. Record the time you spent for this step only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered in this step: _____

8. Design the Top Score Game *

Read the "Design the Top Score Game" section in the Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/challenge-design-game-admin-topscore-game.html,

create a new topscore prize of your choice. Test your changes by going to the "Prizes" page to see your newly created prize. Record the time you spent for this section only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered in this step: _____

9. Design the Raffle Game *

Read the "Design the Raffle Game" section in the Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/challenge-design-game-admin-raffle-game.html.

Create a new raffle prize of your choice. Test your changes by going to the "Prizes" page to see your newly created raffle prize and you can add raffle ticket to it. Record the time you spent for this section only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered in this step: _____

10. Design the Badge Game Mechanics *

Read the "Design the Badge Game Mechanics" section in the Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/challenge-design-game-admin-badge.html.

Create a new badge with an award trigger type of "smartgrid". Specify some kind of awarding condition depending on the smartgrid operations. Verify that your badge shows up in the badge catalog page and you can be awarded the new badge by doing the specified smartgrid action. Record the time you spent for this section only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record any problem you encountered in this step: _____

11. Manage Action submissions *

Read the "Manage Action submissions" section in the Makahiki Manual:

http://makahiki.readthedocs.org/en/latest/execution-manage-smartgrid-game.html#manage-action-

submissions. Approve some actions submitted by you during your playtesting. Record the time you spent for this section only:

○ 5 minutes

○ 10 minutes

○ 30 minutes

○ 1+ hour

Record how many actions you approved, and record any problem you encountered in this step:

_____

Your UH email: * _____