Star Wars RPG Character Creation Made Easy

David A. Abel

Final Report

December 7, 2010

Application Development Section

Project Concept Proposal

Context

This project will create a completely self-contained, fully functional character generator for the Star Wars D20 System Role-Playing Game (RPG). The purpose of this project is to help speed up and simplify the process of creating a character for those who are new to or confused by the process. The character creation process does become quite involved, requiring the calculation of several individual values that are affected by various stats and equipment.

- Revised September 20, 2010

Goals

The goal of this project is to expedite the character creation process. While creating a new character may, at first, seem simple, soon one finds themselves constantly flipping through pages in the Player's Guide trying to find pertinent descriptions. Constantly looking through the Player's Guide quickly becomes exasperating and time consuming. This project will remove the factor of page-flipping to drastically decrease the time needed to make a new character.

- Revised September 21, 2010

Audience

The target audience for this program will be anyone with an interest in trying the Star Wars D20 system. Those interested could be anyone from child to adult, male or female. So long as they have friends and family who are also interested in Star Wars D20, they are prospective users of this program.

Functionality

The project will create a playable level one character for use in the Star Wars D20 system. The user will be directed in each step of the character creation process. The user will be able to roll ability scores, choose a race and class, assign skill points, choose feats, and select equipment. Once the user has made these necessary choices, they will be able to open a new window that displays their choices in an organized format.

-Revised September 26, 2010

Milieu

There are other character generators elsewhere on the Internet. However, not all of them, if any others at all, pertain to the Star Wars D20 system. Some could relate to Dungeons and Dragons or other, lesser known titles.

Novelty

The greatest novelty of this project is that there are few other character generators tailored for the Star Wars D20 system. So long as prospective users perform a proper and thorough search for a Star Wars D20 character generator, this project will be a contender for use.

-Revised September 26, 2010

Resources

HTML Programming Language

JavaScript Programming Language

Geany Programming Editor Tool

Original Code of Character Generator at http://www.pathguy.com/starwars.htm

Introduction to Interactive Programming on the Internet Using HTML and JavaScript by Craig

   D. Knuckles © 2001 John Wiley Sons, Inc

-Revised September 26, 2010

Challenges

The largest challenge of this project is creating a way to access information over separate pages of JavaScript. Once this has been overcome, the project can be successfully spread out and organized over as many pages as are reasonably needed. Another challenge is ensuring that the class and cross-class skills for each class are appropriately separated. There will also be the

challenge of setting up the feat selection so that the feat requirements are followed, including any necessary ability scores and/or other required feats.

-Revised September 26, 2010

Future Extensions

Once the character generator is capable of creating a level one character, it will then be designed to handle creating characters from level two to twenty. In order to create high-level characters, adjustments to skill point and ability score coding will be needed. Some changes will also need to be done to class selection in the event that the user would like to create a multi-class character. If time permits, the user will also be able to fill in their character's miscellaneous information such as name, height, and hair color.

-Revised September 26, 2010

Inspiration

Motivation

The reason I have chosen this project is because I have a great interest in several RPG's, most of them being in the D20 system. The one item all of the different systems had in common that I saw was that the character creation process involved a massive amount of page-flipping and cross-checking of stats, skills, armor, weapon information, and other difficult for beginners to find details. This caused the process itself to extend to at least a few hours before the character was considered playable in the given campaign. This character generator will hopefully cut the

time down considerably by having relevant information close at hand without having to search through books.

Profession

This project will help my professional growth by giving me experience in interpreting and editing code that I have not written. Having no comments will help me to carefully look at the code more carefully to see another's programming style. The general knowledge I attain from this project will help to provide a more secure base and a greater understanding of programming in HTML and JavaScript. Since I have no inclinations over one field of programming over another, I hope that further developing basic skills in Internet Programming will aid in Resume building.

Vision and Scope

This project will create a fully functional character generator for the Star Wars D20 system. Upon completion, it will be possible to create a character of any class and race quickly and easily. Even those unfamiliar with the system will be able to efficiently use the program. Being able to quickly create a character will help to make the world of RPG's available to a wider audience. Thus interest in RPG's will increase due to the increased accessibility of character creation.

The project will allow one to see what each step of the character creation process consists of; beginning with ability rolls and ending with final statistics such as armor class and saving throw totals. Along with seeing what each specific step of character creation is, relevant details will be provided in the form of self-contained links. So if one would like to know what requirements a feat requires or its description, they would simply need to click the feat's name to find such information. Additionally, one will be able to make a high level character, up to level twenty, with as much ease and guidance. However, Prestige Classes are unlikely to be included at this time.

Software Specifications

Number: 1

Statement: User-friendly

Evaluation: Program can be used without need of a Player's Guide

Dependency: Description of character creation steps, skills, feats, and other relevant items

Priority: High

Requirement Revision History:

Number: 2

Statement: Links to additional information that would otherwise unnecessarily clutter the screen and distract the user

Evaluation: Links are not broken and lead to the proper pages

Dependency: Page being linked to is properly formatted

Priority: High

Requirement Revision History: Statement added to for clarification (9/17/10)

Number: 3

Statement: Final layout of user choices

Evaluation: All information is summarized on a separate page and easily read by user

Dependency: Each choice is saved by program

Priority: High

Requirement Revision History: Evaluation modified (9/17/10)

Number: 4

Statement: Creation of characters higher than level one

Evaluation: Final character assessment properly reflects a character of a given level above one

Dependency: Ability to create a character

Priority: Medium

Requirement Revision History:

Number: 5

Statement: Racial Adjustment Modifiers

Evaluation: Each race's adjustments to ability scores are properly applied to originally generated scores

Dependency: Original scores are created and modifiable

Priority: High

Requirement Revision History:

Number: 6

Statement: Runs in Internet Explorer and Mozilla Firefox

Evaluation: Both browsers provide the same or nearly same character creation experience

Dependency: Computer that runs one or both browsers

Priority: High

Requirement Revision History:

Number: 7

Statement: Program is set up in a series of pages where each page is a specific segment in the character creation process

Evaluation: Information made in each page is saved and retrievable when the user has moved to another page

Priority: High

Requirement Revision History:

System Design and Architecture

The project will be set up as a series of pages. Whatever information the user selects or inputs will be saved in cookies so it can be used for the final output. The first page will allow the user to roll their ability scores, choose a race, and choose a class. The second page will be for skill selection. The third page will let the user select appropriate feats. The fourth page will be language selection and the fifth page for choosing equipment. Once the user has made all

necessary choices, the final page will display any other statistics the user would have to calculate if they were not using a character generator.

Functions will be implemented to handle user selections. Drop-down menus and check boxes will be used as they are needed. Functions on the first page will include functions to generate ability scores, determine modifiers, switch ability scores, display racial modifiers, and save the user's class choice. The second page will have functions to handle maximum skill ranks and which skills are class and cross-class skills for the user's chosen class. Functions on the third page will determine if the user has the correct prerequisites for any given feat. There will also be functions to determine which feats the user already has due to their class and/or race selection. Language selection on the fourth page will have a function to determine which languages a character can learn and another function to determine how many languages the user can choose as starting languages. The fifth page will have a function to record which items the user chooses so they can be written on the display page.

❖ First Page

  ➢ begin()

  ➢ Activate rolling() by a button

  ➢ standard_roll() called for each roll

    ▪ reroll_ones()

  ➢ find_modifier()

  ➢ check()

- Score_Swap()

- Score_Swap()

- Score_Swap()

- Score_Swap()

- Score_Swap()

- Score_Swap()

- cooks()

  - determine_class()

- deselect()

  - determine_class()

- check_jedi()

- drop-down menu selection activates Show_Changes()

- button activates Race_Info()

  - Race_Window()

❖ Second Page

- begin()

- find_class()

- ➢ function add_point()

  - ▪ skill_check()

- ➢ function deduct_point()

  - ▪ skill_check()

- ❖ Third Page

  - ➢ function open()

  - ➢ function valid_feat()

  - ➢ function unpick()

  - ➢ check_form_2()

  - ➢ feat_vars()

- ❖ Fourth Page

  - ➢ function theRace()

  - ➢ function theClass()

  - ➢ function hitpoints() and woundpoints()

  - ➢ function reflex(), fortitude(), and will()

  - ➢ function initiative(), melee(), ranged(), defense()

  - ➢ function astrogate_rank() … tumble_rank()

> ➢ function which_feats()

Revised October 4, 2010

Revised October 19, 2010 (page two functions)

Revised October 25, 2010 (page one and page two functions)

Revised November 23, 2010 (page three functions)

Revised Nobember 30, 2010 (original page four deleted due to time constraints, adjusted new

fourth page functions)

Implementation

README.txt

abeld-R5.doc

Score_Setting01.html	// first page of character generator that determines ability scores, // modifiers, race, and class (last modified Oct. 3, 2010)
Skills01.html	// second page of character generator to determine user's total skill // points and which skills are class and which are cross-class skills
feats.html	// third page to determine number of and which feats the character // can learn
final_page.html	// shows results of user's choices
---_info.html	// extra pages that provide additional information on a given Race

Revised October 19, 2010 ('Skills01.html' added)

Revised November 18, 2010 ('feats.html' and '---_info.html' added)

Revised December 5, 2010 ('final_page.html' added)

Known Bugs and Other Issues – in Star Wars Creator 2.0 beta

Page One – If the user moves to the next page via button and then goes back to the page and uses the button again after choosing a race that has ability adjustments, the adjustments will be applied a second time.

Works in Internet Explorer and Mozilla Firefox but will not work in Google Chrome, Safari, or Opera.

Revised December 5, 2010 (added issue with browsers)

Test Plan and Test Cases

Purpose

The tested application is a Star Wars Role-Playing Game Character Generator. It will allow one to easily and quickly create a playable first level character.

Features to be Tested

Requirement 1: User Friendly

Requirement 2: Links are Correctly Implemented

Requirement 3: Final Layout is Readable

Requirement 4: Internet Explorer and Mozilla Firefox Compatible

Requirement 5: Information on Each Page is Retrievable

Feature Not to be Tested

Non-requirement 1: Creation of Character Above Level One

Non-requirement 2: Racial Modifiers are Properly Applied

Approach

User will run their preferred web-browser to properly navigate the instructions provided in the program to create their custom-tailored character.

Environmental Needs

The user will, at minimum, need to run a Windows Operating System using either the Internet Explorer or Mozilla Firefox web-browsers. Javascript and Cookies must also be allowed to run on the user's computer.

Acceptance Criteria

All items on page are self-explanatory or are accompanied by explanations.

Links are not broken.

Final layout is understandable.

Internet Explorer and Mozilla Firefox have only aesthetic differences.

Cookies are saved and have the correct information.

Test Cases

Test 1: Information

Requirement: 1

Precondition: File is unopened.

Steps: Open file.

Results: Step descriptions exist and are easy to follow.

Test 2: Linking

Requirement: 2

Precondition: Links exist.

Steps: Click links.

Results: Links lead to correct page.

Test 3: Display

Requirement: 3

Precondition: All user submitted information has been saved.

Steps: Go to display page.

Results: Display page shows user their choices.

Test 4: Browser Using

Requirement: 4

Preconditions: Files not accessed.

Steps: Open in chosen browser.

Results: Pages are shown correctly in either browser.

Test 5: Information Saved

Requirement: 5

Preconditions: Cookies have yet to be made or have outdated information.

Steps: Follow onscreen instructions.

Results: Cookies exist and possess correct information.

Test 6: User cannot allocate more skill points than allowed.

Preconditions: The added total of ranks in all skills do not exceed the added total of available

skill points (cross-class skills count as double the shown value).

Steps: Add ranks in skills until the added total of skill ranks equals available skill points.

Results: When added skill ranks equal available skill points, no more skill ranks can be added.

Test 7: Ability scores and modifiers can be switched.

Preconditions: The scores have been rolled by the user.

Steps: Generate ability scores and modifiers then try to switch two scores.

Results: The scores will be switched between the chosen abilities and the modifiers will follow.

Test 8: Ability scores are adjusted depending on what Race the user selects.

Preconditions: User has rolled scores and chosen a Race and Class.

Steps: Click button to move to the next page.

Results: Any abilities that need to be adjusted due to the chosen Race are properly changed.

Software Demonstration Video

This video shows many of the features implemented in the program and provides as much explanation as to what is happening as seemed appropriate.

http://www.youtube.com/watch?v=Q8xuKCWyZR0

About the Author

David Abel is an aspiring Internet Programmer, intending for his skills to be focused on Web-based displays of text, images, and videos among other topics. Through Internet Programming, David hopes to incorporate some of his greatest interests into his professional career. His interests include Role-Playing Games (RPG's), writing, and online games. In creating this Star Wars Character Generator, David intends to become more comfortable in two of the most common Internet languages.

Executive Section

To: Dr. Jan Pearce, Project Director

From: David A. Abel

Subject: Star Wars RPG Character Creation Made Easy

Date: September 6, 2010

Accomplishments

This week I focused on looking through the code to get a feel for what was happening in the programming. While many lines appear irrelevant to the final product, the majority of the code does appear to directly pertain to the desired results. Fortunately, the cause for 18000 lines of code is mostly due to required repetition in the code to accommodate the finite number of possible choices inherent in the character creation process.

Time Spent

7 Hours Code Researching

Goals

I will begin commenting on the code with what I believe the purpose of each function is. If necessary, I will refresh on any parts of the code that utilize aspects I am not fully versed in and look up any parts of the code's aspects I have not yet seen. In doing so, I hope to isolate the parts of the code that directly deal with the page's final appearance so that I can not only reorganize the page, but also quickly and easily add links to additional, relevant information.

To: Dr. Jan Pearce, Project Director

From: David A. Abel

Subject: Star Wars RPG Character Creation Made Easy

Date: September 13, 2010

Accomplishments

Much of this week was spent exploring alternate ways to adequately create the character generator. Thus far, a basic outline of the final product has been drawn up and further research is underway to ensure that the character generator will follow the official guidelines for creating characters in the Star Wars D20 system. I have also done a preliminary logo sketch. I will have to refine it, but its present incarnation will serve as a base for future logo sketches.

Time Spent

3 Hours Planning

1 Hour Consulting

.5 Hours Preliminary Logo Creation

2 Hours Studying Character Creation Process

5.5 Hours for Week

12.5 Hours from Project Start to Present

Goals

For the coming week, I intend to begin coding individual sections of the character generator once a detailed outline is complete. For coding, I intend to start with the simplest features such as the number generation and descriptions. The outline will be written out on paper to act as an easier reference guide during the coding process.

To: Dr. Jan Pearce, Project Director

From: David A. Abel

Subject: Star Wars RPG Character Creation Made Easy

Date: September 21, 2010

Accomplishments

I have rough outlines for how I intend to form most of the project's major interfaces. I have started some preliminary coding to gain a firmer grasp of where what I want to do and what can be done overlap. I have also continued to examine specific details of character creation in Star Wars D20; mainly class differences and features.

Challenges

The current primary challenge is creating a system where the program can go from one page to the next while keeping information from previous pages saved for later use. In the next week, I will test a section of code that clears pages in JavaScript to see if it has the desired effect.

Time Spent

2.5 Hours Planning

3 Hours Preliminary Coding

2 Hours Character Creation Research

1 Hour Researching HTML and JavaScript

8.5 Hours for Week

22 Hours from Project Start to Present

Goals

The primary goal I have for the coming week is setting up the character creation process so that the user can move through pages of choices while each choice made in previous pages of the character creation process remains saved. Additional research into HTML and JavaScript will be necessary if the project is to go as planned.

To: Dr. Jan Pearce, Project Director

From: David A. Abel

Subject: Star Wars RPG Character Creation Made Easy

Date: September 28, 2010

Accomplishments

The project can generate one's ability scores, modifiers, and what the racial adjustments for eighteen different races are. The adjustments themselves will not affect the scores rolled until the user chooses to move on to the next page. No instructions on the use of the generator have been done yet. I am saving those for last in case I have to change the coding at a later date in such a way that would require the onscreen instructions to change.

Challenges

I am still working on keeping information accessible between different pages of JavaScript. However, I have found several different ways to accomplish this goal. The first way I will try is

the cookie approach. If that proves unsuccessful, I will move on to the others until a working solution is found.

Time Spent

4 Hours Coding

1 Hour JavaScript Research

5 Hours for Week

27 Hours from Project Start to Present

Goals

Once I have the information preservation working in JavaScript, I will continue with coding the generator itself. Once I have completed the first page of the generator, I will create the pages that will show extra, relevant information on races and classes and provide the links to those pages from the generator's first page.

To: Dr. Jan Pearce, Project Director

From: David A. Abel

Subject: Star Wars RPG Character Creation Made Easy

Date: October 5, 2010

Accomplishments

I have nearly completed the first page and have it working within the expected parameters. The last item for the first page is refining the Cookie code and ensuring that the necessary variables

are saved. During this time, I have also discovered that Cookies can be specialized for certain tasks so if the current code I am using for Cookies proves ineffective, I can find Cookie code that may be closer to what I wish for it to do.

Challenges

Creating and saving Cookies is still proving difficult. Thus far all of the Cookie code I have tried has tended to 'break' the page, preventing anything from being viewed at all. However, I have found at least three additional resources within the past week to draw on for information about Cookies. If the next week proves fruitless as far as creating working Cookies, I will seriously consider a different approach.

Time Spent

2.5 Hours Coding

4 Hours Researching and Testing Cookies

6.5 Hours for Week

33.5 Hours from Start to Finish

Goals

First and foremost, I will continue working with the Cookie code over the next week. Preserving variables is the highest concern for my current intended layout for the project. If necessary, I will continue looking for additional resources concerning Cookies, especially if my current resources lead to dead ends.

To: Dr. Jan Pearce, Project Director

From: David A. Abel

Subject: Star Wars RPG Character Creation Made Easy

Date: October 19, 2010

Accomplishments

I have set up a preliminary system to set skill points for a character and I have a mapped out idea of how the feats page will be set up. Also, upon further study of the Star Wars RP character creation process, I realized that there were many specialized rules for Jedi characters. At this point, it appears that I will have to add some additional features to the first page, but they seem to be simple enough.

Challenges

The Cookies are still giving me troubles. Now I am fairly certain it is because the program is not recognizing variables containing information of a specific field in a form. As of yet, I have not been able to navigate around this problem but feel it is the key to making the Cookies work properly. I have already tried to employ several different tactics to make form fields capable of being stored in variables to be used in functions, but no attempt has yet succeeded.

Time Spent

2.5 Hours JavaScript Research (Mainly Cookies)

4.5 Hours Coding/Planning

1.5 Hours Character Creation Research

8.5 Hours for Week

42 Hours from Start to Finish

Goals

As of now, I intend to shift my goals away from exclusively Cookies. I will try and get as much of the software up and running as possible. If the Cookies ultimately fail, then I will simply have no choice but to include all of the code into a single file so that all of the variables are accessible to the entire program. I intend to code the Feats and Language pages once I am finished reworking the first page.

To: Dr. Jan Pearce, Project Director

From: David A. Abel

Subject: Star Wars RPG Character Creation Made Easy

Date: October 26, 2010

Accomplishments

I have managed to finish getting the bugs out of the Cookie code. I can now save and transport variables between different JavaScript pages. I have also made a precaution with the force feats added to the first page; if a jedi class is not selected, the user can't check any of the feats, if a jedi class is deselected, any selected feats are deselected as well. For the second page, I have generalized the function calls for the skills form and have set up a simple determiner for checking to see if a particular skill is class or cross-class.

Challenges

After figuring out the Cookies and making form variables changeable from functions, there haven't been any major challenges that caused a dead stop to coding. Generalizing the skills form function calls was simply imitating what I did for switching ability scores on page one. The only major challenge in the near future is ensuring that choices meant only for jedi classes can be made only when one chooses a jedi class.

Time Spent

11.5 Hours Coding

11.5 Hours for Week

53.5 Hours from Start to Finish

Goals

I will work out any remaining bugs for the first page and complete work on the second page. During this time, I hope to find the time to redo the logo, although I may immediately start on the third page of the project. With the Cookie problem solved, I will hopefully be able to more quickly create the code for the rest of the project.

To: Dr. Jan Pearce, Project Director

From: David A. Abel

Subject: Star Wars RPG Character Creation Made Easy

Date: November 2, 2010

<u>Accomplishments</u>

This has been a slow week. Some time was spent coding while an undocumented amount of time was spent pondering over difficulties concerning skills. For the time being, more attention will be given to writing out the instructions for what currently exists as well as creating the pages that will provide additional information.

<u>Challenges</u>

The current immediate challenge is sorting out the class and cross-class skills for each class. To determine class and cross-class skills, two criteria must be checked; the class and the skill. With nine classes, the amount of code required will likely escalate quickly since they each have their own unique set of class and cross-class skills.

<u>Time Spent</u>

2 Hours Coding

.5 Hours Javascript Research

2.5 Hours for Week

56 Hours from Start to Finish

<u>Goals</u>

For the coming week, I intend to write out all instructions and all pages currently required by the program. Once that is done, I intend to further tackle the problem of determining class and cross-class skills.

To: Dr. Jan Pearce, Project Director

From: David A. Abel

Subject: Star Wars RPG Character Creation Made Easy

Date: November 18, 2010

Accomplishments

The first two pages of the project are currently in working order. It is now possible to generate ability scores, move the scores as desired, choose a Race and Class, and assign the character's allotment of skill points amongst the possible skill choices. With feats, a character's possible starting feats are already selected on the third page and they cannot be deselected. Also, the user cannot select a feat if it has prerequisites their character cannot meet.

Challenges

It was difficult ensuring that there would be no way for the user to allocate more skill points to skills than they had points to spend. However, it is now impossible for the user to go over the allotted limit just by clicking the 'Add' and 'Subtract' buttons for the skills. Now the biggest challenge is to ensure that the user cannot select more feats than they would be allowed to take. Once that is accomplished, I should just need to create the character layout page to show the user the final result of the choices they made.

Time Spent

17 Hours Coding and Planning

2.5 Hours Javascript Research

5.5 Hours Extra Information Writing

25 Hours for Week

81 Hours from Start to Finish

Goals

In the coming week, I will finish the feats page and, if necessary, fine tune the first two pages as needed. At this point, they are in perfect working order from the technical sense. All that is immediately required are the onscreen instructions for the use of the character generator.

To: Dr. Jan Pearce, Project Director

From: David A. Abel

Subject: Star Wars RPG Character Creation Made Easy

Date: November 23, 2010

Accomplishments

The functions for ensuring the user can't check more feats than they are able to take at level one are working. It was difficult to ensure that, if their chosen class had a bonus feat, the feats that could be chosen as bonus feats counted as bonus feats first and regular feats second. Other than that, the only thing left to do was to create Cookies for the feats that the user had selected.

Challenges

At one point, if the user selected and then deselected certain feats, the program would count deselected feats as chosen feats. I had to go over the various if-else statements in the function in

order to isolate and fix the problem. Now, the biggest challenge should only be choosing how to display the user's choices back to them once they go to the final page.

Time Spent

6 Hours Coding and Planning

1.5 Hours Javascript Research

7.5 Hours for Week

88.5 Hours from Start to Finish

Goals

For the next week, I will bring all of the gathered information together into a final display page to show the user the results of their choices. This should take considerably less time than the other pages since I won't have to worry about saving any additional information. Once that is complete, I can create the final video demonstration.

To: Dr. Jan Pearce, Project Director

From: David A. Abel

Subject: Star Wars RPG Character Creation Made Easy

Date: November 30, 2010

Accomplishments

I have completed a working version of the program. All basic functions are working as intended and the final page is displaying all statistics accurately. Currently, the video is still in the production stages, but it is coming along smoothly thus far.

Challenges

The biggest challenge in the past week was getting the proper software for recording video. However, it was also challenging to ensure that the final page would take all possible circumstances into account when calculating the statistics.

Time Spent

7 Hours Coding and Planning

3.5 Hours Video

10.5 Hours for Week

99 Hours from Start to Finish

Goals

In the coming week, I will finish the video presentation in conjunction with working on the poster board. I already have some ideas on how to arrange the poster and will hopefully be able to efficiently complete it to give maximum time for working on the video.

To: Dr. Jan Pearce, Project Director

From: David A. Abel

Subject: Star Wars RPG Character Creation Made Easy

Date: December 7, 2010

<u>Accomplishments</u>

I finalized the video, set up the poster board, and went through any necessary touch-ups in regard to the program and report. Everything has been pulled together and should be ready for the software presentation.

<u>Challenges</u>

There have been no major difficulties within the past week. The video was finished easily and the poster board only required a little planning for the layout. Otherwise, with the programming basically complete for the presentation, this week's requirements were quickly met.

<u>Time Spent</u>

3 Hours Coding and Planning

3 Hours Video

6 Hours for Week

105 Hours from Start to Finish