

The Amazing Atlas: Africa Edition

Authors: Onuva Ekram, Diya Bengani, Aarushi Gupta

Revision: 5/20/22 → *editing* 5/24/22

Introduction:

The Amazing Atlas: Africa Edition is the program our group chose to create. The purpose of this program serves to academically assist the general public with geography skills with this version focusing on the African continent. This user-friendly, interactive application highlights various features that are designed to promote educational knowledge and concepts which relate to the different regions and countries within Africa: fun-facts about each of the 54 countries, capitals, etc. Within the application, the user is able to navigate from an introduction screen to the main menu which consists of three modes (study, quiz, and draw) as well as the instructions that discuss the various parts that make up the program. The application is focused around an interactive map of Africa where the user is able to click on the countries within the graphical map to open up specific information. In study mode, the user is prompted to answer questions regarding country names, capitals, and other miscellaneous information – general trivia. Ultimately, this allows the user to learn more about the African continent in an engaging manner.

More specifically, the user will have the opportunity to get fast facts and more about the culture and environment each country consists of through a guessing system. The program will also contain a feature in which users will be able to recreate their own maps of Africa using a drawing tool. As students in the United States, our education, specifically in geography/history has been North America, Asia, and Europe-focused; one of the least explored continents being Africa. Our group hopes to battle this challenge by creating this map which will expose more of the population to understanding Africa geologically, socially, and environmentally.

As this is a self-directed tool, there aren't certain rules a user has to follow to operate the program. Instead there is an extensive array of features the user has the ability to explore all for aiding growth of knowledge relating to African-geography.

Instructions:

As the program is run, the user first sees an introduction screen with a general title and picture of our learning tool. Upon clicking the start button, the user is then transported to the "Main Menu" screen which is how the user is able to navigate between modes, adjust the settings, and view the instructions. In the top right corner, the button with the '?' symbol, when clicked on, opens up a pop-up window which displays a general synopsis of the program; more specifically, what each mode features and ultimate

purpose is. Next to that button is another button which when clicked on, opens a new screen that allows the user to adjust the volume of the music to their liking. Going back to the menu, the center of the screen includes three buttons that each navigate to their respective screens. Now for more about each mode. The first option is Study Mode, and goes to a new screen that displays a colored, user-friendly, graphical map of Africa. The map is clickable and when a country is clicked on, the user is provided with general facts and basic knowledge of the country including the name, capital, a fast fact, and a picture of their respective flag. The user is also prompted to continue seeing randomized facts or to close that pop up to view other countries. The second mode, Quiz Mode, ultimately tests the user's knowledge on the countries within Africa. Through randomized questions regarding the geography of African countries, the user will be able to answer questions and keep moving forward regardless if the chosen answer is correct or incorrect. This is also tracked with a points system and high score system which increments the score each time a question is answered correctly. Finally, the final mode, Drawing Mode, which is a user-directed learning tool that prompts the user to practice their drawing of the different countries, draw diagrams and visuals that help them learn, and take notes. On the right side is a toolbar that allows the user to click on preset colors to change the color of the stroke of their pen—it features the entire rainbow of colors. On the bottom left of the screen are three buttons: reset, erase, and color wheel. The reset button, once clicked on, clears the entire screen and provides the user with a fresh, new surface to draw on. The erase button works just like an eraser where the user can pick and choose what parts of their drawing board are to be erased. Finally is the color wheel, which allows the user to pick from a multitude of colors that add to the preset colors. All three Modes are able to navigate back to Menu through a home button in the top left corner of the screen.

Features List (THE ONLY SECTION THAT CANNOT CHANGE LATER):

Must-have Features:

- A graphical map of Africa that displays each of the countries within the continent of. This will be the introduction page the user sees before they choose which mode they want to go in (study or quiz). [Fulfilled by the background]
- A guessing game where users can click on different countries and see if they can guess the name of the country. [Fulfilled by quiz mode]
- The study mode will allow the user to click on any country and read information about that country, such as the capital, important landmarks, historical events, ... etc.. [Fulfilled by study mode]
- A welcome screen that gives general instructions to the user, a start playing button, and the menu option to see high scores and credits. [Fulfilled by Menu/Introduction screens]

- Tabs that when clicked on, direct the user to learn more information (statistics, like most populated country, poorest country, ... etc.) about the different regions and countries within Africa, and switch between modes (study and quiz). [Fulfilled by Study Mode]

Want-to-have Features:

- A zoom in/out feature to zoom into parts of Africa using the mouse scroll and/or the +/- buttons. The zoom feature will allow the user to see the countries better, considering the differences in size, and small symbols on the countries that symbolize the capital (for example, a star to represent the city).
- Tutorial/Walkthrough of features (video tutorial).
- A search option to search for the desired country.
- Music/soundtracks and sounds for different actions/screens that can be toggled and altered in the menu.
- Except for the most important information (such as the capital of the country), somehow get random data and/or pictures of the place from an outside source (as suggested, "having a local database file that sends a request to a geographic facts API to get data about the place") or files.
- Presenting accuracy of drawn maps in "drawing mode" to the actual map of Africa.

Stretch Features:

- Repeating the "Must-Have Features" for each of the seven continents in the world and allowing the user to switch to each continent.
- A 3D simulation of a virtual journey through the most popular places in Africa (Cairo, Egypt or Cape Town, South Africa) and other continents.
- Have the zoom in feature allow users to zoom into capital cities and even click them to see images/facts specific to the capital cities, rather than only the country.

Class List:

- Main // main method !
- Map // Keeping track of countries from file/databases
- Introduction // home screen with game name
- Instruction // Instructions A.K.A. Rules A.K.A. you know what this is stop reading
- Quiz Mode // The Quiz Mode - up to further discussion
- Study Mode

- Menu // navigating to different aspects of the program - Drawing Mode, High Score (label), Study mode, Quiz Mode, Map of Africa
- DrawingSurface // drawing surface !
- Drawing Mode //drawing tool for map drawing
- ScreenSwitcher //interface
- Screen //abstract
- Music
- Settings

1. Main uses DrawingSurface
2. DrawingSurface HAS-A Music, Settings, Introduction, Instructions, Menu, Study Mode, Quiz Mode and Drawing Mode
3. Music, Settings, Introduction, Instructions, Menu, Study Mode, Quiz Mode and Drawing Mode all HAS-A DrawingSurface
4. Settings, Introduction, Instructions, Menu, Study Mode, Quiz Mode and Drawing Mode all extends (IS-A) Screen
5. Quiz Mode and Study Mode HAS-A Map
6. DrawingSurface implements ScreenSwitcher

Credits:

Internal Credit:

Diya: Contributing to coding part by working on the Introduction, Instructions, and Quiz Mode classes. Also reorganized the bottom toolbar (for drawing mode) – found icons for those. Diya also contributed to the initial UML diagrams and organized the structure and hierarchy of the classes. Wrote some javadocs.

Onuva: Contributed to the coding part by working on the StudyMode, Map, and Main classes. Additionally, has worked on the animations logic and code (buttons and mouse for clicks). Onuva worked on finalizing the UML diagrams as well as organizing the structure and hierarchy of the classes. Wrote some javadocs.

Aarushi: Contributed to the coding part by working on DrawingSurface, ScreenSwitcher, Screen, Menu, and DrawingMode classes. Additionally created the skeleton class headings, javadocs, and edited/finalized the ReadMe and UML. Created background screen images, and collected/formatted country information.

All Members: Added ideas and edited fields/methods to individual classes. All members contributed to the ReadMe and UML processes.

External Credit:

Countries Fun Facts: <https://www.factsinstitute.com/countries>
www.worldatlas.com
<https://onhisowntrip.com/>
<https://factsaboutanything.com/>

Country Map: <https://www.mapsofworld.com/>
Country Flags: <https://www.countryflags.com/>
Color Wheel: <https://www.sessions.edu/color-calculator/>
House, Drawing Mode icons (trashcan, color wheel, eraser): <https://icons8.com/icons/set/house>

Music: https://www.youtube.com/watch?v=xy_NKN75Jhw&ab_channel=GamingSoundFX
<https://youtu.be/7ht7WS6wFjc> (reflections)
https://www.youtube.com/watch?v=xy_NKN75Jhw&ab_channel=GamingSoundFX (elevator),
<https://youtu.be/7vj4HLszl4w> (relax)