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**Definition of the Problem.**

For my project I decided to make a program that compiles and decompiles strings of text. I chose it as it would be a good learning experience for me as it would help me understand how encoding works while also giving me a chance to learn about java’s GUI library. I used the Java programming language as it would help me learn more about Object Oriented Programming, it would also allow the project to be built on multiple different platforms due to how java is written. Having my project computerized allows for quick and easy conversion, without it I would have to learn many different types of ways to convert words into a chosen converter.

Chapter 2: Solution of the Problem

* The **main** class has six functions which include:

1. main(): This function is run when the program is started and creates a JFrame and a JPanel so that UI elements can be added later on.
2. drawUI(): This function is triggered after the window and the UI panel are created, this function adds all of the UI elements to the screen and sets their positions accordingly.
3. encodeText(String text): This function is triggered if the user presses the **Encode** button. This function checks what encoder option the user has selected and the inputted string and encodes it using the selected encoder.
4. decodeText(String text): This function is similar to the last one except it is triggered when the user presses the **Decode** button and instead of encoding the string, it decodes it with the selected decoder.
5. copytoclipboard(String text): This function is triggered when the user presses the **Copy to Clipboard** button. This function copies the outputted string into the user’s clipboard.
6. setOutput(String output): This function simply sets the output field to the desired string. This function is mainly used in external classes to allow for an easier and more readable way to change the output field’s contents.

* The **Info** class only has one function:

1. infoMenu(): This function opens the info window and creates all of its UI elements.

* The **Encoder** class has six functions which include:

1. outputInfo(String input, String output, String encoder): When triggered, this function will output information about the inputted string, the outputted string and the encoder.
2. Base64(String text): When triggered this function will use the Base64 class found in at **java.util.Base64** to encode the given string. It will then output the encoded string into the console.
3. DAscii(String text): When triggered this function will convert the given string into a Decimal ASCII string.
4. Binary(String text): When triggered, this function will convert the inputted string to its binary equivalent. It will then output the binary value.
5. CaesarCipher(String text): When triggered this function will convert the given string into its Caesar Cipher equivalent, it does this by increasing the value of every character in the string which will give the next character. It will then output the encoded string.
6. Reverse(String text): When triggered this function will reverse the given string. It will then output the result.