**Design Document: QR Code Generation**

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Description

The QR Code Generator project will generate a QR code based on the user input. A QR code is an image that is a compilation of black and white squares to create one larger square. The programs job is to first convert the input into its specialized data with error correction codewords. This specialized data is in 1’s and 0’s, binary format, representing black and white squares. Following that, the program needs to appropriately place the specialized data along with preserving the data at reserved areas. For larger QR codes version info and error correction level must be generated to be placed at reserved areas. With a third party service one can scan the QR code that was generated and as a result will get their initial input. The inputs for this program is text only, as pictures, audio etc. become too data intensive to create a QR code for. The output is simply a QR code that can be scanned.

Classes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Fields | Methods | Data Types | Return Types | Parameters |
| QRGeneration | 1. alphabet | 1. main  2. getEncodedData  3. addPadBytes  4. getDataMultipleEight  5. getTerminator  6. alphaModeEncoding  7. padZeroLeft  8. intToBinary  9. charCount | 1. String | 1. void  2. String  3. String  4. String  5. String  6. String  7. String  8. String  9. String | 1. Null  2. String text  3. String DATA, int MAX\_BIT  4. String DATA  5. int MAX\_BIT, int CURR\_BIT  6. String txt  7. String txt, int BIT\_LENGTH  8. int x  9. String txt |
| ErrorCorrection | 1. data | 1. ErrorCorrection (Const)  2.  getErrorCorrectionCode  3. getTerms  4. decreaseTerms  5. decreaseExpo  6. convertCoeffToExpo  7. xorCoeff  8. convertCoeffToIN  9. ltMessagePoly  10. matchExpo  11. GaloisField  12.numberGaloisFieldToExponent | 1. String | 1. int[]  2. int[]  3.ArrayList<Integer> (AL<int>)  4. AL<int>  5. AL<int>  6. AL<int>  7. AL<int>  8. AL<int>  9. AL<int>  10. AL<int>  11. int  12. int | 1. String d  2. Null  3. AL<int> r  4. AL<int> gp,int n  5. AL<int> gp,int n  6. AL<int> a  7. AL<int> r, AL<int> mp  8. AL<int> a  9. AL<int> g, int lt  10. AL<int> mp, AL<int> gp  11. int exponent  12. int num |