ECE6260A – Spring 2016
Term Project
Instructions

- "Original" signal available for download on **`t-square`**; filename is **`signal.wav`**.
- The signal is in mono wav format. The sampling rate is 16 KHz (or thousand samples per second).
- You need to use whatever you have learned in class to analyze and compress the signal.
- As discussed in class, the performance of a compression system may include several dimensions, such as bit rate (or the compressed file size), quality, delay and complexity. In this term project, we will only focus on the bit rate (or the compressed file size) and quality, not delay nor complexity. Your algorithm can be as complex as you'd like as long as it can execute and deliver the result within a reasonable amount of time.
- To help you with some reference coding schemes, a g.729 codec in c is provided on t-square. You can take a look at the codec, learn how various implementation issues are handled, re-implement the parts you need in your scheme, but do not simply copy the code to avoid potential violation of the copyright. This code is only for reference and strictly limited to class related work; discard the code at the end of the school term.
- Your submission, packed in an archived file (zip, tar, etc.), again with filename **`Txxfinalproject.zip`**, should include:
  - A report:
    - Analysis of the signal and important technical decisions that affect your design;
    - Explanation of the encoding algorithm (how you do it);
    - Performance report (resultant file size, compression ratio, SQNR, distortion level, **subjective judgment**, etc.);
    - Discussion (to convince reader/grader you have discovered the best algorithm)
  - **`Matlab`** code for the decoder, code synopsis and running instructions (for others to verify the code);
  - The compressed file;
  - The reconstructed signal file;
  - A set of presentation slides for use in the student presentation sessions.
- Due date: **5pm, Sunday, April 17, 2016;** all submissions will be posted on **`t-square`** for class evaluation (see below).
- Random pairing will be used to form teams for project work; you have a chance to learn to work together with an arbitrary partner. Each team (numbered **`xx`** in the filename) will submit one finished project.
- Each submission will be evaluated by the class. The evaluation (see forms at the end of this instruction) will include the following dimensions with respective weights:
  - 45%: Bit rate (file size or compression ratio);
  - 45%: Perceived quality;
  - 10%: Quality of implementation (code) and report (including discussion).

  You can download the evaluation form from **`t-square`**. Each student (not each team) will submit one evaluation form by 5pm Wednesday 5/4.
- Each team will give a 7-minute presentation (<= 5 slides) during the two allocated lecture sessions to tell the class key ideas of the scheme and its implementation, demonstrate results and provide instructions for running the code for evaluation. I'll collate the presentations into two sequences, again in random order.

Presentation Sequence & Time (TBD)

Wednesday, April 20, 2016	Friday, April 22, 2016

ECE6260A –Spring, 2016
Signal Compression Project Evaluation Form
(Return evaluation results and bug report by 5:00 PM, May 4, 2016, Wednsday)

Submitted by: _____

Instructions: Please rate each submission along the three dimensions in the scale 0 to 10. Proper weighting will be introduced afterwards to produce the final evaluation result.

Team Number	Efficiency (0-10)	Quality (0-10)	Report (0-10)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

Bug Report submitted by _____

Submission Team	Observed Code Bugs