

AP COMPUTER SCIENCE A – CONVERT BASES PROJECT

The goal of this project is to write a program `ConvertBases.java` which converts numbers between bases 2 through 16 (inclusive). You should start with `ConvertBasesStub.java`, which you may download from `canvas.instructure.com`. Note that your program will need to use class `ConsoleInput.java`.

- 1) Add the needed code to `public int readBase (ConsoleInput ci)` to read in a valid base. Keep prompting the user until a valid base, between 2 and 16 (inclusive), is entered.
- 2) Add the needed code to `public String readNumber (int inBase, ConsoleInput ci)` to read in a `String` representing a valid number in base `inBase`. Keep prompting the user until a valid number is entered.
- 3) The easiest way to convert a number is first to convert it to base 10, and then to convert it from base 10 to the desired base. Thus, add code to methods `public int toBase10 (String s, int inBase)` and `public String base10ToBase (int num, int toBase)` to perform the conversions.
- 4) Add the required code to `main` to read in the various parameters required to do the conversion, and print the result to the console. For example, when converting 3421 in base 5 to base 7, the output to the console should look something like (note that the bold corresponds to user input):

```
Convert from:
    base = ? 5
    number = ? 3421
    to:
    base = ? 7
```

1263

You may test your program with the following test cases:

- i)
 $3421_5 \rightarrow 1263_7$
- ii)
 $cab_{16} \rightarrow 6253_8$
- iii)
 $34a29_{11} \rightarrow 76227_9$

Once your program is working, let me see the code and you running it for one of the test cases.