AP Computer Science
Unit 0 Summer Assignment: 21-22

Complete the following problems over the summer before APCS. All code should be written in Java. Each program will be tested with 5 inputs. The program should take each input and show the appropriate output before taking the next input. In other words, write the program to work for one input, and then loop the entire program to run five times.

When writing your programs, write the most efficient code possible. Make smart use of conditions, loops, methods and arrays where appropriate. Part of your grade for this assignment will be on the efficiency of your code.

Part of the purpose of this assignment is to get you back into Java programming and to help prepare you to solve more difficult problems. It is highly encouraged to plan your code using paper and pencil before you begin coding.

These programs will take some thought and planning. You may discuss these problems with other students. That said, each student is responsible for completing his or her own work. Students caught cheating on this assignment (copying code from another student, copying code from the internet, etc.) will receive a zero.

Replit
This assignment should be completed and submitted through Replit. For instructions on how to access Replit, refer to the email sent by your teacher. All code should be created and run from one class file.

If you are coding on Replit, create a main method in each of your project java files. Then, call them from Main.java to test them. To do this, use the following code inside the main method of Main.java:

```
Problem1.main(null); //calls the main method of Problem 1
Problem2.main(null); //calls the main method of Problem 2
```

PROBLEM 1: APCS AMUSEMENT PARK

Most hourly jobs require someone to enter information on a timesheet. The APCS Amusement Park is open from 9:00 a.m. to 5:00 p.m. The Business Office enters a code representing the location where an employee works and the starting time and ending time for each day. The codes entered are as follows:

9:00 = 1	9:30 = 2	10:00 = 3	10:30 = 4	11:00 = 5	11:30 = 6	12:00 = 7
12:30 = 8	1:00 = 9	1:30 = A	2:00 = B	2:30 = C	3:00 = D	3:30 = E
4:00 = F	4:30 = G	5:00 = H				

- Locations 100-199 get paid $10.00 per hour with time and a half for any hours over 5 per day.
- Locations 200-299 get paid $7.50 per hour with double time for hours worked over 6 per day.
- Locations 300-399 get paid $9.25 for the first 4 hours and $10.50 for the rest.
- Locations 400-499 get paid $13.50 per hour on Sundays (day 1) and Saturdays (day 7) and $6.75 per hour otherwise.
- Locations 500-599 get paid $8.00 per hour for the first 6 hours per day and $12.00 per hour after that.

INPUT: There will be 5 lines of input. Each line will contain the employee information for 2 work days. The data will represent in order the location, the day number, the start time and the end time for each day.

OUTPUT: The total amount of money that the employee gets paid for the two days printed as dollars and cents rounded to the nearest cent.

SAMPLE INPUT	**SAMPLE OUTPUT**
1. 125, 2, 1, 7, 125, 3, 5, H	1. $95.00
2. 214, 4, 1, H, 314, 5, 5, H	2. $133.00
3. 318, 1, 1, H, 319, 3, 3, D	3. $126.50
4. 423, 1, 1, 7, 500, 2, 5, H	4. $88.50
5. 529, 6, 1, G, 100, 4, 2, G	5. $146.00

PROBLEM 2: SECRET CODES

Cryptography is the art of writing/solving codes. Computers encode and decode information often as precious data is sent across the big, bad internet. One method of enciphering and deciphering messages is to use shifts and circles. In this problem, you will take a series of commands, separated by slashes and a string and apply the appropriate actions to the string. The action definitions are as follows:

LS-X: Shifts all the characters of the string X places to the left. The leftmost X characters are deleted and X #'s are inserted on the right to return the string to its original length. LS–3 COMPUTER = PUTER###

RS–X: Shifts all the characters of the string X places to the right. The rightmost X characters are deleted and X #'s are
inserted on the left to return the string to its original length. RS–3 COMPUTER = ###COMPU

LC-X: Circulates the leftmost X characters to the right-hand side of the string. LC–3 COMPUTER = PUTERCOM

RC–X: Circulates the rightmost X characters to the left-hand side of the string. RC–3 COMPUTER = TERCOMPU

MC– SLXD: Circulates the sub-string starting in position S with a length of L, X characters, in the direction D. All the arguments (S, L, X and D will be one character in length. The direction will be either L or R for left and right.
MC–332R COMPUTER = COPUMTER

REV–SL: Reverses the order of the characters starting at position S with a length of L. REV–33 COMPUTER = COUPMTER

INPUT: There will be five lines of input. Each line will be a string. Each string will consist of one or more commands and a character string to operate on. The commands will be separated from each other by a slash. The order of operation is always from left to right as the commands appear.

OUTPUT: For each line of input, print the resulting string.

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SAMPLE INPUT	**SAMPLE OUTPUT**
1. LS-1/RS-1/OHIO	1. #HIO
2. RC-2/LC-5/CINCINNATI	2. CINNATICIN
3. LS-1/LC-3/MC-453L/MEMORIAL	3. RIAMOL#E