Week 7 Assessment

Theoretical Questions:Q1. What’s the difference between a goroutine and an operating system thread?

Ans.)

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| Goroutine | Thread |
| Goroutines are managed by the go runtime. | Operating system threads are managed by kernal. |
| Goroutine are not hardware dependent. | Threads are hardware dependent. |
| Goroutines have easy communication medium known as channel. | Thread does not have easy communication medium. |
| Due to the presence of channel one goroutine can communicate with other goroutine with low latency. | Due to lack of easy communication medium inter-threads communicate takes place with high latency. |
| Goroutine does not have ID because go does not have Thread Local Storage. | Threads have their own unique ID because they have Thread Local Storage. |
| Goroutines are cheaper than threads. | The cost of threads are higher than goroutine. |
| They are cooperatively scheduled. | They are preemptively scheduled. |
| They have fasted startup time than threads. | They have slow startup time than goroutines. |
| Goroutine has growable segmented stacks. | Threads does not have growable segmented stacks. |

Q2. Can constants be computed in Go?

Ans.) In Go, constants provide complete safety in regards to the value they hold. They cannot be computed (making them used less often), but are guaranteed to always reference the same value.

Q3. What does the Go ecosystem use for package and dependency management?

Ans.) Go modules or go.mod is used which is one of many package managers to deal with dependencies in Go.

Q4. How would you succinctly swap the values of two variables in Go?

Ans.) In the program if we add the line

x, y := y, x  
 Thinking that x and y are our declared variables. Then we can succinctly swap the values

Q5. Do you have any preferences for error handling methodologies in Go?

Ans.) Defer, panic and recover are the methods used to handle errors in GoLang.

Q6. What is a pointer and when would you use it?

Ans.)

Q7. Describe the difference between sync.Mutex and sync.RWMutex?

Ans.)

Q8. Consider the following code. What will be the value of s1?

Ans.)

Q9. Are channels and maps safe for concurrent access?

Ans.)

Q10. How would you sort a slice of custom structs?

Ans.)

Practical Questions:Q1. How to swap two numbers without using a third variable?

Ans.)

Q2. Golang Program to check if a vowel is present in the string?

Ans.)

Q3. Golang program to check if the given number is Prime?

Ans.)

Q4. Please write a Golang program to add tab, new line and print "Mr. ABC" along with double quotes from a string?

Ans.)

Q5. Pleaase write a Golang program to find sum and average from the given  
array[2,4,6,8,34,5,7,3,5,67,4]

Ans.)

Q6. Please write a program to find factorial of the number input from the keyboard?

Ans.)

Q7. Create a Pyramid of Characters in in Golang?

Ans.)

Q8. Please write a program to concatenate two given arrays [3,5,76,3,6,3,5,6,3] and [2,3,65,7,4,3,6,3,56,3]?

Ans.)

Q9. Find second largest number in an array [3,5,76,3,6,3,5,6,3]?

Ans.)

Q10. Please write a Golang program to print your name in the text file?

Ans.)