Go培训第九天

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Outline

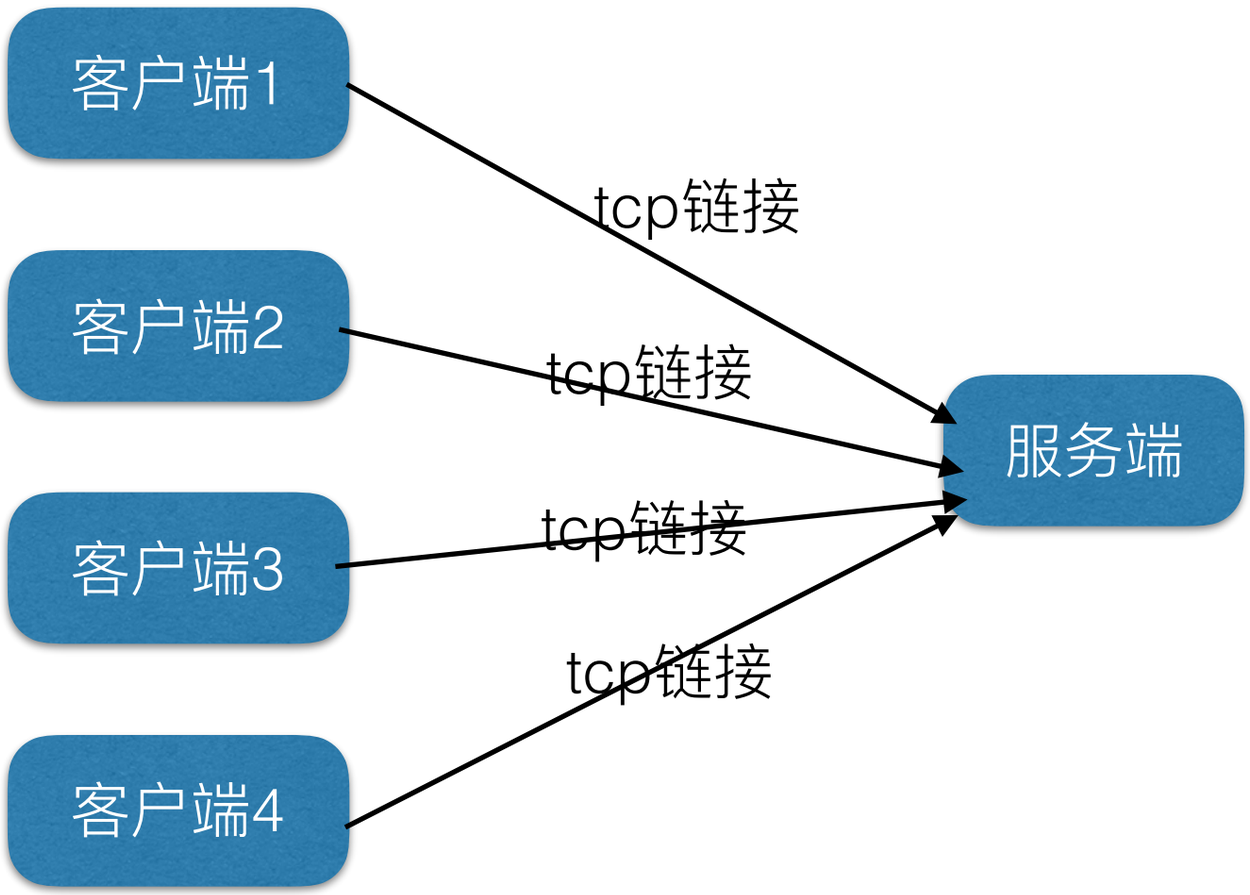
1. Tcp编程

2. redis使用

3. 课后作业

tcp编程

1. 客户端和服务器



socket编程

2. 服务端的处理流程

a. 监听端口

b. 接收客户端的链接

c. 创建goroutine，处理该链接

3. 客户端的处理流程

a. 建立与服务端的链接

b. 进行数据收发

c. 关闭链接

4. 服务端代码

```
package main

import (
	"fmt"
	"net"
)
func main() {
	fmt.Println("start server...")
	listen, err := net.Listen("tcp", "0.0.0.0:50000")
	if err != nil {
		fmt.Println("listen failed, err:", err)
		return
	}
	for {
		conn, err := listen.Accept()
		if err != nil {
			fmt.Println("accept failed, err:", err)
			continue
		}
		go process(conn)
	}
}
func process(conn net.Conn) {
	defer conn.Close()
	for {
		buf := make([]byte, 512)
		_, err := conn.Read(buf)
		if err != nil {
			fmt.Println("read err:", err)
			return
		}
		fmt.Println("read: ", string(buf))
	}
}
```

5. 客户端代码

```
package main

import (
	"bufio"
	"fmt"
	"net"
	"os"
	"strings"
)

func main() {

	conn, err := net.Dial("tcp", "localhost:50000")
	if err != nil {
		fmt.Println("Error dialing", err.Error())
		return
	}

	defer conn.Close()
	inputReader := bufio.NewReader(os.Stdin)
	for {
		input, _ := inputReader.ReadString('\n')
		trimmedInput := strings.Trim(input, "\r\n")
		if trimmedInput == "Q" {
			return
		}
		_, err = conn.Write([]byte(trimmedInput))
		if err != nil {
			return
		}
	}
}
```

socket编程

6. 发送http请求

```
package main

import (
	"fmt"
	"io"
	"net"
)
func main() {

	conn, err := net.Dial("tcp", "www.baidu.com:80")
	if err != nil {
		fmt.Println("Error dialing", err.Error())
		return
	}
	defer conn.Close()
	msg := "GET / HTTP/1.1\r\n"
	msg += "Host: www.baidu.com\r\n"
	msg += "Connection: close\r\n"
	msg += "\r\n\r\n"

	_, err = io.WriteString(conn, msg)
	if err != nil {
		fmt.Println("write string failed, ", err)
		return
	}
	buf := make([]byte, 4096)
	for {
		count, err := conn.Read(buf)
		if err != nil {
			break
		}
		fmt.Println(string(buf[0:count]))
	}
}
```

redis

7. redis

redis是个开源的高性能的key-value的内存数据库，可以把它当成远程的数据结构。

支持的value类型非常多，比如string、list（链表）、set（集合）、hash表等等

redis性能非常高，单机能够达到15w qps，通常适合做缓存。

redis

8. redis使用

使用第三方开源的redis库: github.com/garyburd/redigo/redis

```
import(
        “github.com/garyburd/redigo/redis"
)
```

redis

9. 链接redis

```
package main

import (
	"fmt"
	"github.com/garyburd/redigo/redis"
)

func main() {
	c, err := redis.Dial("tcp", "localhost:6379")
	if err != nil {
		fmt.Println("conn redis failed,", err)
		return
	}

	defer c.Close()
}
```

10. Set 接口

```
package main

import (
	"fmt"
	"github.com/garyburd/redigo/redis"
)

func main() {
	c, err := redis.Dial("tcp", "localhost:6379")
	if err != nil {
		fmt.Println("conn redis failed,", err)
		return
	}
	defer c.Close()
	_, err = c.Do("Set", "abc", 100)
	if err != nil {
		fmt.Println(err)
		return
	}

	r, err := redis.Int(c.Do("Get", "abc"))
	if err != nil {
		fmt.Println("get abc failed,", err)
		return
	}

	fmt.Println(r)
}
```

11. Hash表

```
package main

import (
	"fmt"
	"github.com/garyburd/redigo/redis"
)

func main() {
	c, err := redis.Dial("tcp", "localhost:6379")
	if err != nil {
		fmt.Println("conn redis failed,", err)
		return
	}
	defer c.Close()
	_, err = c.Do("HSet", "books", "abc", 100)
	if err != nil {
		fmt.Println(err)
		return
	}

	r, err := redis.Int(c.Do("HGet", "books", "abc"))
	if err != nil {
		fmt.Println("get abc failed,", err)
		return
	}

	fmt.Println(r)
}
```

11. 批量Set

```
package main

import (
	"fmt"
	"github.com/garyburd/redigo/redis"
)

func main() {
	c, err := redis.Dial("tcp", "localhost:6379")
	if err != nil {
		fmt.Println("conn redis failed,", err)
		return
	}

	defer c.Close()
	_, err = c.Do("MSet", "abc", 100, "efg", 300)
	if err != nil {
		fmt.Println(err)
		return
	}

	r, err := redis.Ints(c.Do("MGet", "abc", "efg"))
	if err != nil {
		fmt.Println("get abc failed,", err)
		return
	}

	for _, v := range r {
		fmt.Println(v)
	}
}
```

11. 过期时间

```
package main

import (
	"fmt"
	"github.com/garyburd/redigo/redis"
)

func main() {
	c, err := redis.Dial("tcp", "localhost:6379")
	if err != nil {
		fmt.Println("conn redis failed,", err)
		return
	}

	defer c.Close()
	_, err = c.Do("expire", "abc", 10)
	if err != nil {
		fmt.Println(err)
		return
	}
}
```

12. 队列操作

```
package main

import (
	"fmt"
	"github.com/garyburd/redigo/redis"
)

func main() {
	c, err := redis.Dial("tcp", "localhost:6379")
	if err != nil {
		fmt.Println("conn redis failed,", err)
		return
	}
	defer c.Close()
	_, err = c.Do("lpush", "book_list", "abc", "ceg", 300)
	if err != nil {
		fmt.Println(err)
		return
	}

	r, err := redis.String(c.Do("lpop", "book_list"))
	if err != nil {
		fmt.Println("get abc failed,", err)
		return
	}

	fmt.Println(r)
}
```

课后工作

1. 完善之前讲的图书管理系统

    a. 使用redis存储数据