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1. Define token types according to the chapter 3 slide, page 23. List all different types of tokens in the following C program.

```
int main(void)
{
   int i=0, select;
    float sum = 3.14;

   while (i<=100) {
      sum = sum + i;
      select = sum % 3;
      switch (select) {
      case 0: func0(); break;
      case 1: func1(); break;
      case 2: func2(); break;
      default: func3();
      }
      i++;
   }
   return 0;
}
```

Hint: 請寫下 token type 與實際的 lexeme，例如: token_type (NUM): 0, 100

token_type (INT)	int
token_type (BLANK)	' ', '\t', '\n'
token_type (MAIN)	main
token_type (( )	(
token_type (void)	void
token_type ( ))	)
token_type (=)	=
token_type (;)	;
token_type (FLOAT)	float
token_type (WHILE)	while
token_type (NUM)	0, 3.14, 100, 3, 1, 2
token_type (ID)	i, select, sum
token_type (<=)	<=
token_type (+)	+
token_type (%)	%
token_type (SWITCH)	swtich
token_type ({)	{
token_type (})	}
token_type (CASE)	case
token_type (:)	:

token_type (FUNC0)	func0()
token_type (FUNC1)	func1()
token_type (FUNC2)	func2()
token_type (FUNC3)	func3()
token_type (BREAK)	break
token_type (DEFAULT)	default
token_type (++)	++
token_type (RETURN)	return
token_type (,)	,

2. Describe the languages denoted by the following regular expressions:
   (a) (0|1)*00
   (b) ab(b)*a

(a) all strings of 0's and 1's and end with string 00
(b) all strings begin with ab and follow by 0 or more b and end by a

3. Write regular expressions for the following languages:
   (a) All strings of 0's and 1's that contain the string 001.
   (b) All strings of a's and b's that ends with string aba or bab.

(a) (0|1)*001(0|1)*
(b) (a|b)*(aba|bab)