# Compilers Principles Lab5 Report
## Language Features Extension

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# Outline

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# Goals
Type System Extension

- Pointers
  **int** ∗ptr;
- Function pointers
  **int** (∗func)(**int**);
- Arrays
  **int** array [42];

- Structures
  **struct** S {...};
  **struct** S s;
  **struct** S {...} s;
  **struct** {...} anonymous;

# Declaration Grammar

## Declaration grammar

var-declaration $\rightarrow$ type-specifier declarator ;

## Example

| Variable declaration | Type specifier | Declarator |
|---|:---:|:---:|
| **int** *ptr; | **int** | *ptr |
| **int** array [42]; | **int** | array [42] |

# Type Specifiers

cminuf supports type **int**, **float** and **void**.

### Type specifiers

$$\text{type-specifier} \rightarrow \textbf{int} \mid \textbf{float} \mid \textbf{void}$$

# Declarators

- Pointer declarators

  $\boxed{*\text{ptr}}$ in $\boxed{\textbf{int} *\text{ptr};}$

- Function declarators

  $\boxed{\text{func}(\textbf{int})}$ in $\boxed{\textbf{int} \text{ func}(\textbf{int});}$

- Array declarators

  $\boxed{\text{array } [42]}$ in $\boxed{\textbf{int} \text{ array } [42];}$

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