

```
typedef struct _node_ {
    char name[20];
    struct _node_ *next;
} node;
...
/* create & append new node to the list */
node *append_node(struct _node_ *list_head, char *name)
{
    node *temp;

    /* create a new node */
    node *new_node = (node *) malloc (sizeof (node));
    strcpy (new_node->name, name);
    new_node->next = NULL;
    if ( !list_head )
        return new_node;
    temp = list_head;
    while (temp->next != NULL)
        temp = temp->next;
    // append the new node at the end of the list
    temp->next = new_node;
    return list_head;
}
```

GNU C Programming

Course Overview

This course is designed for participants who wish to make their careers based on C programming. The entire course is delivered on Linux platform and it aims at drastically improving the programming skills of the participant right from basic to an advanced level. It looks at all the internal concepts and standards of C making you adept at using C for all general purpose and system programming needs. We also look at best programming practices to write better and functionally effective C programs.

Key Takeaways

- Learning to use C for system software development and application programming needs
- Looking at a simpler ways to understand core C concepts like pointers, structures etc.
- Learning on Linux environment
- Understanding programming standards and best practices

Prerequisites

- Basic C knowledge / Keen interest to learn C language

Course Duration

- 1.5 months



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Courses Contents

<p>Functions</p> <ul style="list-style-type: none">• Overview• The Role of Functions• Function Libraries• Functions — Syntax• Return Values• Function Arguments• Local Variables• Scope and Lifetime• Functions Calling Functions• Call-by-Value• Definition and Declaration• Variadic Functions• Inline Functions <p>Dynamic Memory</p> <ul style="list-style-type: none">• Using Malloc• Using Calloc• Using Realloc• Using Free <p>Compiling, Linking, and Locating</p> <ul style="list-style-type: none">• The Build Process• Compiling• Linking• Locating <p>Pointers</p> <ul style="list-style-type: none">• What is a Pointer?• Pointer Types• Un-initialized Pointers• Null Pointers• Pointers as Function Arguments• Pointers and Arrays• Pointer Arithmetic• Passing Arrays to Functions	<ul style="list-style-type: none">• Pointers to Constant Data• Passing Pointers-to-Const• Converting Pointers-to-Const• Pointers to Pointers• Constant Pointers• Increment Operators and Pointers• Pointers to Functions• Null Pointers <p>The Preprocessor</p> <p>Bit Manipulation</p> <ul style="list-style-type: none">• Objectives• Introduction• Bit Twiddling Operators• Bit Shifting• Portable Bit Manipulation• Print Bit Representations <p>Other Data Types: Structures, Unions, and Enums</p> <ul style="list-style-type: none">• Overview• Defining Structures• Using Structures• Initializing Structure Variables• Problems with Initializing Structures• Initializing Arrays of Structures• Pointers to Structures• Passing Structures to Functions• Passing Structure Pointers• Structures as Data Types• Unions
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Arrays	List Implementation
<ul style="list-style-type: none">• Looping over an Array• Array Sizes• Copying Arrays• Initializing Arrays• Strings• Array Caveats	<ul style="list-style-type: none">• Stacks• Queues• Single linked list• Double linked list• Circular linked list



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