DAILY ASSESSMENT FORMAT

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Course:	SoloLearn	USN:	4AL17EC006
Topic:	C programming	Semester & Section:	6th Sem A sec
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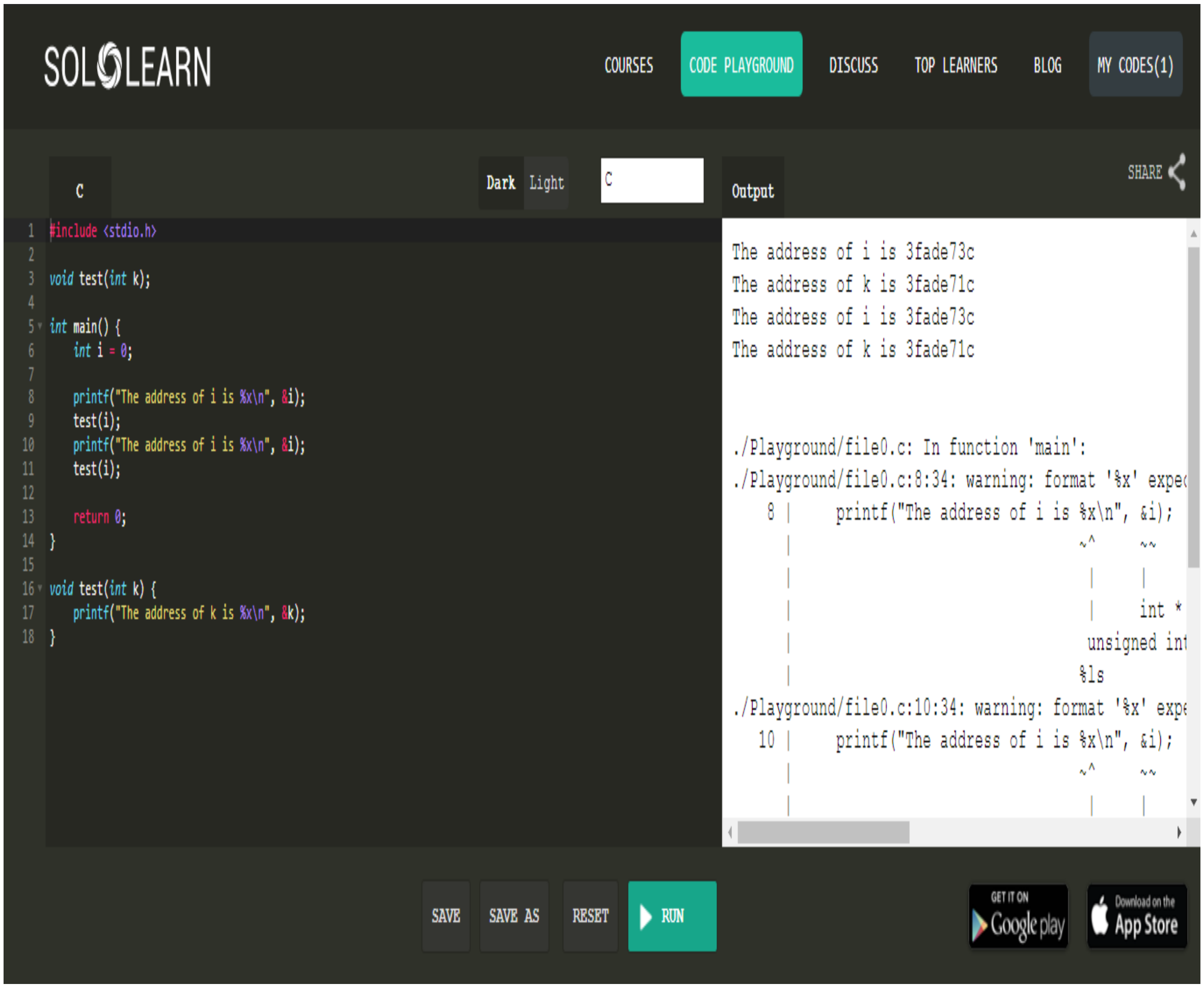
FORENOON SESSION DETAILS

Image of session



```c
#include <stdio.h>

void test(int k);

int main() {
    int i = 0;

    printf("The address of i is %x\n", &i);
    test(i);
    printf("The address of i is %x\n", &i);
    test(i);

    return 0;
}

void test(int k) {
    printf("The address of k is %x\n", &k);
}
```

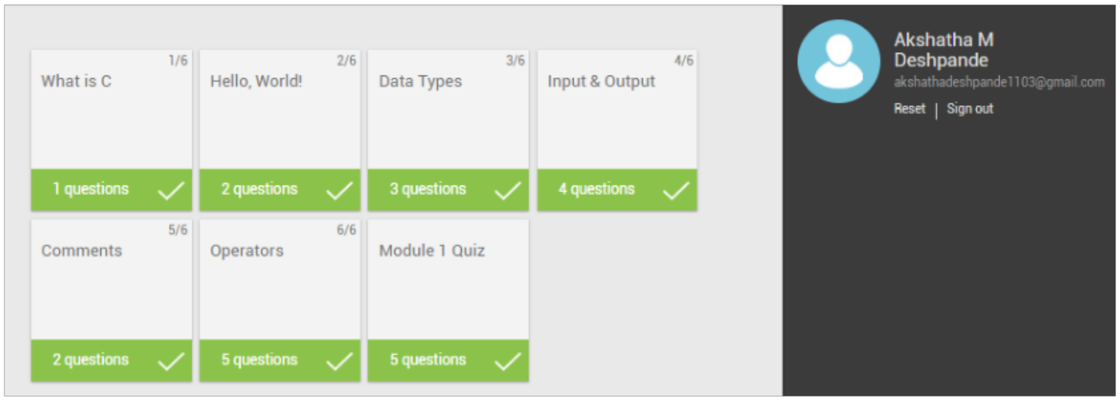
```
The address of i is 3fade73c
The address of k is 3fade71c
The address of i is 3fade73c
The address of k is 3fade71c


./Playground/file0.c: In function 'main':
./Playground/file0.c:8:34: warning: format '%x' expe
    8 |     printf("The address of i is %x\n", &i);
      |                                 ~^     ~~
      |                                  |     |
      |                                  |     int *
      |                                 unsigned int
      |                                 %ls
./Playground/file0.c:10:34: warning: format '%x' expe
   10 |     printf("The address of i is %x\n", &i);
      |                                 ~^     ~~
      |                                  |     |
```

Report – Report can be typed or hand written for up to two pages.

Module 1:

- C is a general-purpose programming language that has been around for nearly 50 years.
- C has been used to write everything from operating systems (including Windows and many others) to complex programs like the Python interpreter, Git, Oracle database, and more.
- The versatility of C is by design. It is a low-level language that relates closely to the way machines work while still being easy to learn.
- The function used for generating output is defined in stdio.h
- In order to use the printf function, we need to first include the required file, also called a header file.
- return 0; This statement terminates the main() function and returns the value 0 to the calling process. The number 0 generally means that our program has successfully executed. Any other number indicates that the program has failed.
- A printf statement can have multiple format specifiers with corresponding arguments to replace the specifiers. Format specifiers are also referred to as conversion specifiers.
- int: 4 float: 4 double: 8 char: 1
- A variable is a name for an area in memory.
- The C programming language is case-sensitive, so my_Variable and my_variable are two different identifiers.
- A constant stores a value that cannot be changed from its initial assignment
- Another way to define a constant is with the #define preprocessor directive.
- The #define directive uses macros for defining constant values.

- The difference between const and #define is that the former uses memory for storage and the latter does not.
- The gets() function is used to read input as an ordered sequence of characters, also called a string.
- A string is stored in a char array.
- getchar() Returns the value of the next single character input.
- scanf() scans input that matches format specifiers
- putchar() Outputs a single character
- The puts() function is used to display output as a string.
- A string is stored in a char array again.
- Note that the & must be used to access the variable addresses. The & isn't needed for a string because a string name acts as a pointer.
- The *, /, and % are performed first in order from left to right and then + and -, also in order from left to right



What is C 1/6 — 1 questions ✓

Hello, World! 2/6 — 2 questions ✓

Data Types 3/6 — 3 questions ✓

Input & Output 4/6 — 4 questions ✓

Comments 5/6 — 2 questions ✓

Operators 6/6 — 5 questions ✓

Module 1 Quiz — 5 questions ✓

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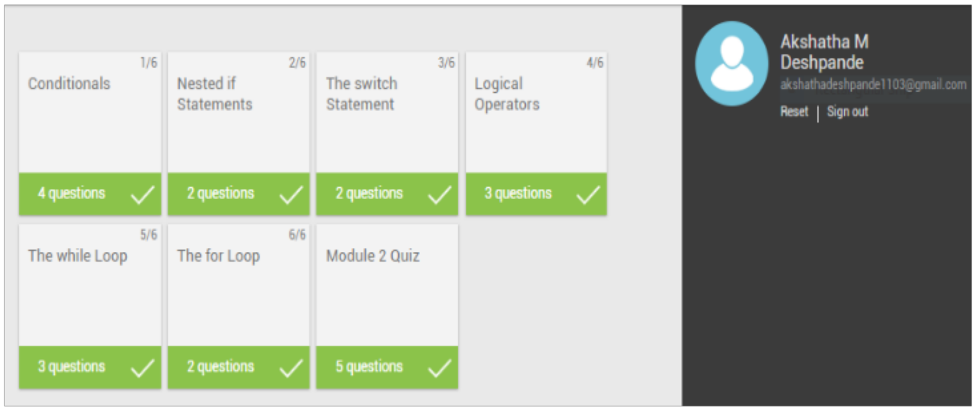
Module 2:

- Conditionals are used to perform different computations or actions depending on whether a condition evaluates to true or false.
- Carefully consider the logic involved when developing an if-else if statement.
- Program flow branches to the statements associated with the first true

expression and none of the remaining expressions will be tested.

- Although indents won't affect the compiled code, the logic of the if-else if will be easier to understand by a reader when the else clauses are aligned.
- In C, any non-zero value is considered true and a 0 is false. The logical NOT operator therefore, converts a true value to 0 and a false value to 1.
- Although the break and continue statements can be convenient, they should not be a substitute for a better algorithm.
- The initvalue is a counter set to an initial value. This part of the for loop is performed only once.The condition is a Boolean expression that compares the counter to a value before each loop iteration, stopping the loop when false is returned.
- The increment increases (or decreases) the counter by a set value.
- A break in an inner loop exits that loop and execution continues with the outer loop.
- A continue statement works similarly in nested loops.


1/6 Conditionals 4 questions ✓
2/6 Nested if Statements 2 questions ✓
3/6 The switch Statement 2 questions ✓
4/6 Logical Operators 3 questions ✓
5/6 The while Loop 3 questions ✓
6/6 The for Loop 2 questions ✓
Module 2 Quiz 5 questions ✓

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Module 3:

- Functions are central to C programming and are used to accomplish a program solution as a series of subtasks.
- By now you know that every C program contains a main() function. And you're familiar with the printf() function
- The return_type is the type of value the function sends back to the calling

statement.

- The function_name is followed by parentheses. Optional parameter names with type declarations are placed inside the parentheses.
- When the parameter types and names are included in a declaration, the declaration is called a function prototype.
- A function's parameters are used to receive values required by the function. Values are passed to these parameters as arguments through the function call.
- Variable scope refers to the visibility of variables within a program
- Static variables have a local scope but are not destroyed when a function is exited.
- Therefore, a static variable retains its value for the life of the program and can be accessed every time the function is re-entered.
- A recursive function is one that calls itself and includes a base case, or exit condition, for ending the recursive calls. In the case of computing a factorial, the base case is num equal to 1.
- An array is a data structure that stores a collection of related values that are all the same type.
- Arrays are useful because they can represent related data with one descriptive name rather than using separate variables that each must be named uniquely.
- The index of an array is also referred to as the subscript.
- A two-dimensional array is an array of arrays and can be thought of as a table. You can also think of a two-dimensional array as a grid for representing a chess board, city blocks, and much more.
- A memory address is given as a hexadecimal number. Hexadecimal, or hex, is a base-16 number system that uses digits 0 through 9 and letters A through.
- Pointers are very important in C programming because they allow you to easily work with memory locations.

- Some algorithms use a pointer to a pointer. This type of variable declaration uses **, and can be assigned the address of another pointer, as in:

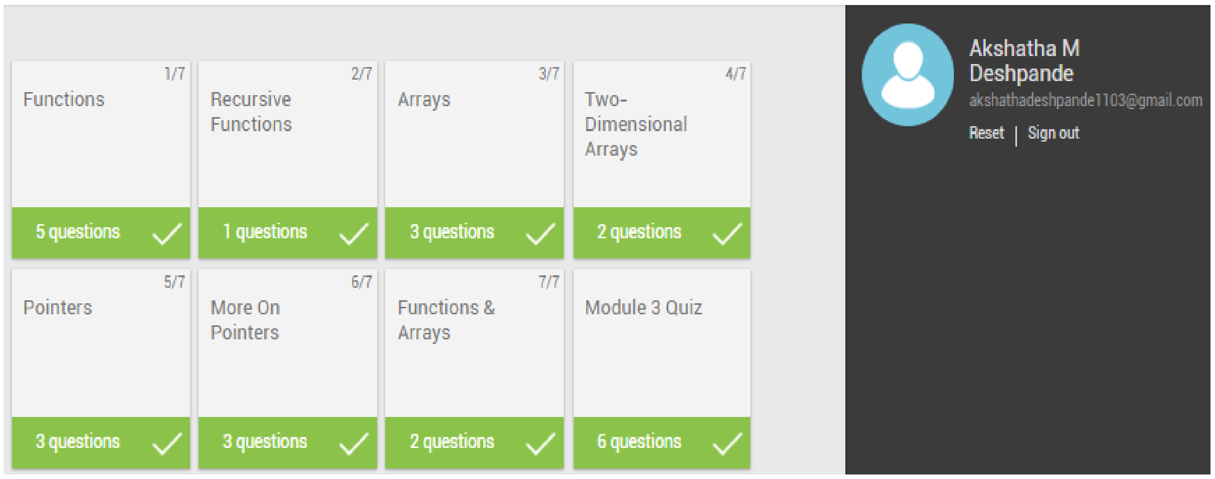
  int x = 12;

  int *p = NULL

  int **ptr = NULL;

  p = &x;

  ptr = &p;



1/7 Functions — 5 questions ✓	2/7 Recursive Functions — 1 questions ✓	3/7 Arrays — 3 questions ✓	4/7 Two-Dimensional Arrays — 2 questions ✓
5/7 Pointers — 3 questions ✓	6/7 More On Pointers — 3 questions ✓	7/7 Functions & Arrays — 2 questions ✓	Module 3 Quiz — 6 questions ✓

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Module 4:

- A string in C is an array of characters that ends with a NULL character '\0'.
- A string declaration can be made in several ways, each with its own considerations.
- strlen() - get length of a string

  strcat() - merge two strings

  strcpy() - copy one string to another

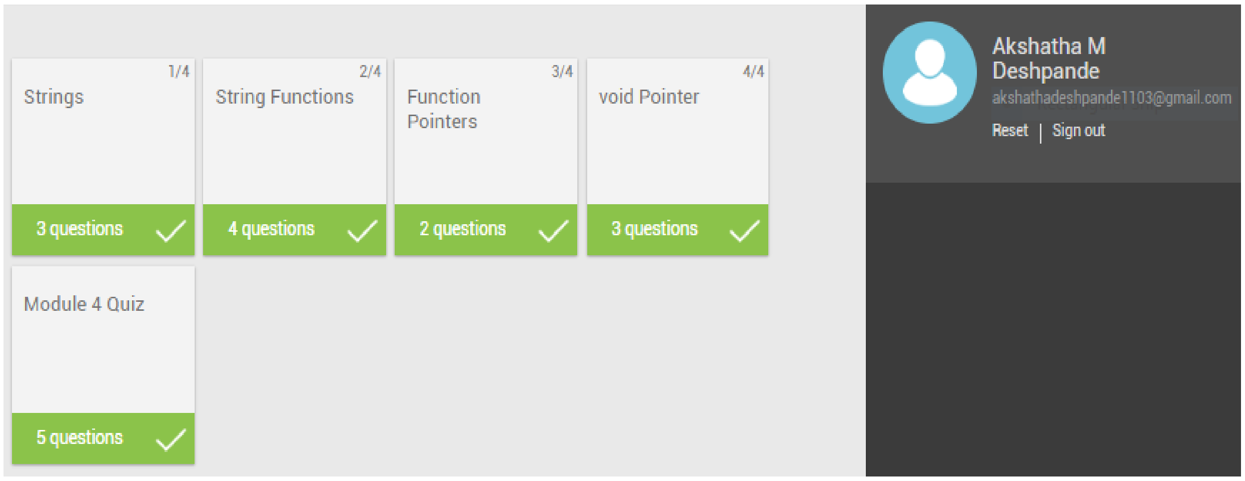
  strlwr() - convert string to lower case

  strupr() - conver string to upper case

strrev() - reverse string

strcmp() - compare two strings

- To retrieve a line of text or other string from the user, C provides the scanf(),gets(), and fgets() functions.
- You can use scanf() to read input according to the format specifiers
- A safer alternative to gets() is fgets(), which reads up to a specified number of characters.
- This approach helps prevent a buffer overflow, which happens when the string array isn't big enough for the typed text.
- A formatted string can be created with the sprintf() function. This is useful for building a string from other data types.



1/4 Strings 3 questions ✓

2/4 String Functions 4 questions ✓

3/4 Function Pointers 2 questions ✓

4/4 void Pointer 3 questions ✓

Module 4 Quiz 5 questions ✓

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