



# RAMCO INSTITUTE OF TECHNOLOGY

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NBA Accredited UG Programs: CSE, EEE, ECE and MECH

Department of Computer Science and Engineering  
Academic Year 2022 – 2023 (Even Semester)

Degree, Semester & Branch: II Semester B.E. CSE ‘A’

Course Code & Title: CS3251 Programming in C

Name of the Faculty member (s): Mrs.B.Vijayalakshmi, AP (SG)/CSE

### Innovative Practice Description

- **Unit / Topic:** Unit IV / Structures
- **Course Outcome:** CO4
- **Topic Learning Outcome:** TLO11
- **Activity Chosen:** Code Finder

• **Justification:**

Structures in C provide a way to define complex data types that encapsulate multiple related variables. Analyzing code snippets to identify structures and understand their usage requires critical thinking and problem-solving skills. Conducting a code finder activity allows learners to explore how structures are used to represent and organize data in practical programming scenarios

• **Time Allotted for the Activity:** 10 Minutes

• **Details of the Implementation:**

- Code finder is an activity in which the learners must interpret the code, infer the purpose of the structures within the context of the program, and find output for the code snippet.
- The concept of structures was taught to the students. At the end of the session, the activity was conducted for the duration of 10 minutes.
- Two different set of programming questions involving structures were designed and given to the students.
- The students were asked to analyze the code snippet and find the output for the given questions.
- The sample questions and the student’s answers are shown in Fig 1.
- The student's responses were analyzed and the discussion was conducted in the next session.

• **CO – PO / PSO mapping:**

CO	PO1	PO2	PO3	PO4	PO5	PO8	PO9	PO10	PO12	PSO1	PSO2	PSO3
CO4	3	2	1	1	2	1	1	1	1	3	1	1

(1 – Low      2 – Moderate      3 – High)

• **PO / PSO mapped:**

Innovative practice	PO1	PO2	PO3	PSO1	PSO2	PSO3
	3	2	1	3	1	1

<b>Justification for correlation</b>	The basic knowledge about structures is needed	The students analyze the given code snippet.	The students find the answer for the given questions.	The concept of structures is used in developing the software	The concept is used in security applications	The concept is used in solving problems in AI
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• Images / Screenshot of the practice:

Thirumathi.R  
CSE-1A

```

1. int main()
{ struct bus {
  int seats;
} F1, *F2;
F1.seats=20;
F2=&F1;
F2->seats=15;
printf("%d ", F1.seats);
return 0; }
a) 15 b. 20
c. 0 d. Compilation Error

```

```

2.int main()
{ struct paint{
  int type;
  int color;
}p1, p2;
p1.type=1;
p1.color=5;
if(sizeof(p1)==sizeof(p2))
{ printf("SAME"); }
else
{ printf("DIFFERENT"); }
return 0;}
A) SAME
B) DIFFERENT
C) Compiler error
D) None of the above

```

3. Which operator connects the structure name to its member name?

a) -  
b) <-  
c) .  
d) Both <- and .

```

4.struct point
{ int x;
  int y; };
struct notpoint
{ int x;
  int y; };
int main()
{ struct point p = {1};
  struct notpoint p1 = p;
  printf("%d\n", p1.x); }
a) Compile time error
b) 1 c) 0 d) Undefined

```

```

5.void main()
{ struct student
{ int no;
  char name[20]; };
struct student s;
no = 8;
printf("%d", no); }
a) Nothing
b) Compile time error
c) Junk

```

```

6.struct
{ int k;
  char c; }; int main()
{ struct p;
  p.k = 10;
  printf("%d\n", p.k); }
a) Compile time error
b) 10
c) Undefined behaviour
d) Segmentation fault

```

```

7. struct p
{ int k;
  char c; };
int p = 10;
int main()
{ struct p x;
  x.k = 10;
  printf("%d %d\n", x.k, p); }
a) Compile time error
b) 10 10
c) Depends on the standard
d) Depends on the compiler

```

8. Assume that size of an integer is 32 bit.

```

struct st
{ int x;
  static int y;};
int main()
{ printf("%d", sizeof(struct st));
  return 0;}
A) 4
B) 8
C) Compiler Error
D) Runtime Error

```

9. union test

```

{ int x;
  char arr[8];
  int y;};
int main()
{ printf("%d", sizeof(union test));
  return 0;}

```

Assume that the size of an integer is 4 bytes and size of character is 1 byte.

A. 12 B. 16 C. 8 D. 9

```

10. struct Point
{ int x, y, z;};
int main()
{ struct Point p1 = {y = 0, .z = 1, .x = 2};
  printf("%d %d %d", p1.x, p1.y, p1.z);
  return 0;}
A. Compiler Error
B) 2 0 1
C. 0 1 2
D. 2 1 0

```

*Hasini P*

```

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F1.seats=20;
F2=&F1;
F2->seats=15;
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2.int main()
{ struct paint{
  int type;
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p1.type=1;
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if(sizeof(p1)==sizeof(p2))
{ printf("SAME"); }
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A) SAME
B) DIFFERENT
C) Compiler error
D) None of the above
3. Which operator connects the structure name to its member name?
a) -
b) <
c) .
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{ int x;
  int y; };
struct notpoint
{ int x;
  int y; };
int main()
{ struct point p = {1};
  struct notpoint p1 = p;
  printf("%d\n", p1.x); }
a) Compile time error
b) 1 c) 0 d) Undefined
5. void main()
{ struct student
  { int no;
    char name[20]; };
  struct student s;
  no = 8;
  printf("%d", no); }
a) Nothing
b) Compile time error
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```

6. struct
{ int k;
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{ struct p;
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a) Compile time error
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int p = 10;
int main()
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a) Compile time error
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A 4
B 8
C Compiler Error
D Runtime Error
9. union test
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Assume that the size of an integer is 4 bytes
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  printf("%d %d %d", p1.x, p1.y, p1.z);
  return 0;}
A. Compiler Error
B. 2 0 1
C. 0 1 2
D. 2 1 0

```

**Fig 1: Sample Coding sheets given to the students**

**• Reflective Critique:**

❖ **Feedback of practice from students and other stakeholders:**

- The students felt that they gain more clarity in the concepts.
- The students found the code finder activity to be engaging and interesting.
- Some of the students asked few more explanation for the particular concepts.

❖ **Benefit of the practice:** (E.g.: Outcome attainment would have increased due to innovative practice over conventional practice)

- The students understanding level of the structure concepts gets improved while exposure to coding practices.

❖ **Challenges faced in implementation:**

- A few students found it challenging to find the answers because they weren't familiar with the fundamentals.

**References:**

- ❖ [https://www.ritrjpm.ac.in/images/computer-science/18\\_EC8393\\_Codedebug.pdf](https://www.ritrjpm.ac.in/images/computer-science/18_EC8393_Codedebug.pdf)