GAMIFICATION OF LEARNING ACTIVITY REPORT
Topic- Build Your Own Compiler

Department of Computer Science and Engineering

GAMIFICATION OF LEARNING ACTIVITY REPORT

Topic: Build Your Own Compiler
Date: 15/04/2025
Venue: Room No. 410
Instructor: Mr. Vipin Rawat
Total Teams: 4
Total Participants: 12

Activity Description:

As part of the **Gamification of Learning** approach, the students participated in a challenge-based activity titled **"Build Your Own Compiler"**. The activity aimed to simulate a game-like environment that encouraged learning through engagement, competition, and rewards.

Each team was given a set of tasks related to the components of a compiler, such as:

- Lexical Analysis
- Syntax Parsing
- Semantic Analysis
- Intermediate Code Generation
- Code Optimization
- Code Generation

Participants List:

1. Chandan Kumar Thakur
2. Balram Kumar
3. Ankit Kumar
4. Ankit Kumar *(duplicate name, assumed different individuals)*
5. Ayush Singh
6. Diwakar Kumar Ojha
7. Ayush Kumar
8. Asmit Mal
9. Ayush Dubey
10. Ashih Gupta
11. Anant Shrivastava
12. Ayush Bhatt

Team Distribution:

- **Team 1**
    - Chandan Kumar Thakur
    - Balram Kumar
    - Ankit Kumar
- **Team 2**
    - Ankit Kumar *(second)*
    - Ayush Singh
    - Diwakar Kumar Ojha
- **Team 3**
    - Ayush Kumar
    - Asmit Mal
    - Ayush Dubey
- **Team 4**
    - Ashih Gupta
    - Anant Shrivastava
    - Ayush Bhatt

Topic :- Code Snippet

int a = 5+3;

* **Expected output :-**

Token → int , a ,= ,5 ,+,3, ;

* **member Name :-**

Chandan kumar thakur

Bairam kumar

Ankit kumar

```
int a = 5+3;
```

Token:-

```
identifier (id1) a
Assigment symbol (=)
identifier (id2) 5
constant number 5
plus sign (+)
constant number 3
```
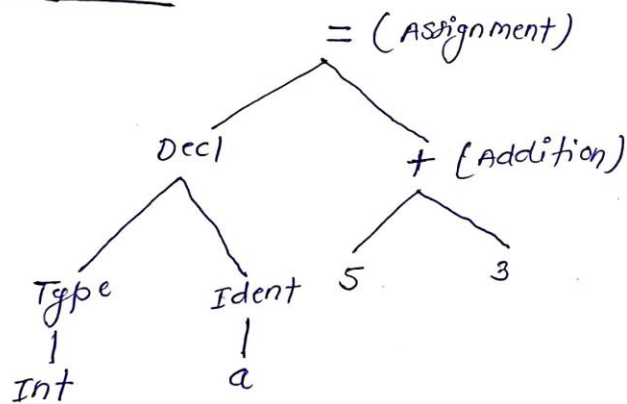
GROUP → II

Topic :– Code Snippet

int a = 5+3;

* Expected output :–o

            * Parse Tree → correct structure

* member Name :– Ankit Kumar (28)
                          Ayush Singh (49)
                          Diwakar kumar ojha (64)

```
int a = 5+3;
```

* Parse tree :–

```
                = (Assignment)
               /             \
           Decl              + (Addition)
          /    \             /      \
       Type   Ident         5        3
         |      |
        Int     a
```

Topic :- Code Snippet

int a = 5+3;

* Expected output :-

Type checking → Pass

* members Name:- 1. Ayush Kumar (48)
2. Asmit Mall (43)
3. Ayush Dubey (47)

$$int\ a = 5+3;$$

Type Checking Explanation :-

① Operands - 5 and 3 are both integer literal

② Operator - +

③ Result type → Since both operands are of type int the result of 5+3 is int

④ Assignment - The result is assigned to variable a

Yes, the types are compatible. The result of the addition is of type int and is assigned to a variable

Group :- 4

Topic : Code Snippet

int a = 5+3;
* Expected output :-

Code generation -> Assembly or
* Members Name :- Psedo - code

* Ashish Gupta (37)
* Anant srivastava (23)
* Ayush Bhatt (46)

$$\boxed{\text{int } a = 5+3;}$$

Intermediate Three- Address code:
o Load 5 into a temporary variable t1.
o Load 3 into a temporary variable t2.
o Add t1 and t2 and store the result in t3.
o Assign the result (t3) to variable a.

$t_1 = 5$
$t_2 = 3$
$t_3 = t_1 + t_2$
$a = t_3$

Attendance Sheet

Course Name:	Compiler Design	Date:	15/4/2025
Branch:	CSE	Year:	8001
Section:	A	Instructor Name:	VIPIN RAWAT
Topic Name:	Build your own compiler		

Sr. No	Roll No.	Name of Student	Sign
1	22036301006	Chandan Kumar Thaku	Chandu
2.	22036301005	Balram Kumar	Baloch
3.	22036301002	Ankit Kumar	Ankit
4.	12036301002	Ankit Kumar	Ankit
5.	22036301004	Ayush Singh	Ayu
6	22036301006	Diwakar Kumar ojha	Diwagly
7.	22036301004	Ayush Kumar	Ayush
8.	22036301004	Asmit mall	Ashmit
9	22036301004	Ayush Dubey	Ayush dubey
10	22036301003	Ashish Gupta	Ashu
11	22036301002	Anant Srivastava	Anant Shriv
12	Ayush Bhatt		
	22036301006	Ayush Bhatt	Ayush

Glimpses of Roleplay Activity

EVALUATION OF THE ACTIVITY

Course Name: Compiler Design
Batch: CSE
Section: A
Topic Name: "Build your own compiler"

Date: 18/4/2025
Year: 3
Instructor Name: VIPIN RAWAT

Sr. No	Roll No.	Team Formation	Name of Student	Backlog Creation	Task Completion (10)	Problem Solving Skills (5)	Team Collaboration (5)	Accuracy (5)	Total
1.	2203630100056		Chandan Kumar Thakur						
2.	2202630100063	Team-1	Balaam Kumar						
3.	2202630100025		Ankit Kumar	2	10	4	5	5	24
4.	2202630100028		Ankit Kumar	2					
5.	2203630100045	Team 2	Ayush singh	2	8	4	4	4	20
6.	2203630100064		Diwakar kumar ojha	2					
7.	2202630100098		Ayush Kumar	2	9	4	4	5	22
8.	2202630100043	Team 3	Asmit mau	2					
9.	2203630100042		Ayush Dubey	2					
10.	2204630100029		Atish Gupte	2	8	4	4	4	20
11.	2202630100023	Team 4	Anant Srivastava	2					
12.	2202630100046		Ayush Bhatt						

Learning Outcomes:

- Improved understanding of compiler design principles
- Hands-on experience in implementing compiler phases
- Enhanced teamwork, time management, and problem-solving skills
- Increased motivation and enthusiasm through gamified elements