TASK-9

1.

Codes:

Above and equal to 18

```js
var input = 25;
var citizenship = true;
if (input >= 18 && citizenship == true) {
  console.log("can vote");
} else {
  console.log("can not vote");
}
```

Below 18

```js
var input = 15;
var citizenship = true;
if (input >= 18 && citizenship == true) {
  console.log("can vote");
} else {
  console.log("can not vote");
}
```

Outputs:

Above and equals to 18 years old the output is:

```
PS D:\23r\js> node Day9.js
can vote
```

Below 18 years old the output is:

```
PS D:\23r\js> node Day9.js
can not vote
```

Explanation:

First code

1. input is 25, and citizenship is true.
2. The condition input >= 18 && citizenship == true evaluates to true because:
input >= 18 is true (since 25 is greater than 18).
citizenship == true is true.
3. Since both conditions are true, the program executes console.log("can vote");.
4. Output: "can vote"

second code

1. input is 15, and citizenship is true.
2. The condition input >= 18 && citizenship == true evaluates to false because:
input >= 18 is false (since 15 is less than 18).
citizenship == true is true.
3. Since one condition is false, the else block is executed.
4. Output: "can not vote"

2.

```
### Question 2: Admission to a Club
**Scenario:** Determine if a person can enter a club.

**Inputs:**
- `age`
- `hasInvitation` (boolean)

**Outputs:**
- `canEnterClub`

**Algorithm:**
1. Check if the age of the person is 21 or older.
2. Check if the person has an invitation.
3. If either condition is true, print `canEnterClub`.
4. Otherwise, print `canNotEnterClub` .


**Example:**
- Input: `age = 20`, `hasInvitation = true`
- Output: `canEnterClub`
```

Codes:

Above and equal to 21

```javascript
var age=30;
var hasInvitation=false;
if(age>=21 || hasInvitation==true)
{
    console.log("canEnterClub");
}
else
{
    console.log("canNotEnterClub")
}
```

Below 21

```
var age=20;
var hasInvitation=false;
if(age>=21 || hasInvitation==true)
{
    console.log("canEnterClub");
}
else
{
    console.log("canNotEnterClub")
}
```

Outputs:

Above and equal to 21 output is:

```
PS D:\23r\js> node Day9.js
canEnterClub
```

Below 21 the output is:

```
PS D:\23r\js> node Day9.js
canNotEnterClub
```

Explanation:

First code

1. The line var age-30; has a syntax error. It should be written as var age = 30;.

2. If we assume the syntax is corrected to var age = 30;:

age is 30, and hasInvitation is false.

3. The condition age >= 21 || hasInvitation == true evaluates to true because:

age >= 21 is true (since 30 is greater than 21).

hasInvitation == true is false, but only one condition needs to be true because it uses the OR operator (||).

4. Since the condition is true, the program executes console.log("canEnterClub");.

5. Output (if syntax is corrected): "canEnterClub"

second code

1. age is 20, and hasInvitation is false.

2. The condition age >= 21 || hasInvitation == true evaluates to false because:

age >= 21 is false (since 20 is less than 21).

hasInvitation == true is also false.

3. Since both conditions are false, the else block is executed.

4. Output: "canNotEnterClub"

3.

```
### Question 3: Discount Eligibility
**Scenario:** Determine if a person is eligible for a discount at a store.

**Inputs:**
- `isMember` (boolean)
- `age`

**Outputs:**
- `isEligibleForDiscount`

**Algorithm:**
1. Check if the person is a member.
2. Check if the person is a senior (65 years old or older).
3. If either condition is true, print `isEligibleForDiscount`.
4. Otherwise, set `isNotEligibleForDiscount`.


**Example:**
- Input: `isMember = false`, `age = 70`
- Output: `isEligibleForDiscount`
```

Codes:

```javascript
var isMember = false;
var age = 70;
if (isMember == false || age >= 65) {
  console.log("isEligibleForDiscount");
} else {
  console.log("isNotEligibleForDiscount")
}
```

```javascript
var isMember = true;
var age = 50;
if (isMember == false || age >= 65) {
  console.log("isEligibleForDiscount");
} else {
  console.log("isNotEligibleForDiscount");
}
```

Outputs:

```
PS D:\23r\js> node Day9.js
isEligibleForDiscount
```

```
PS D:\23r\js> node Day9.js
isNotEligibleForDiscount
```

Explanation:
First code

1. isMember is set to false, and age is 70.
2. The condition isMember == false || age >= 65 evaluates to true because:
isMember == false is true.
age >= 65 is also true (since 70 is greater than 65).
3. Since at least one of the conditions is true (using the OR operator ||), the program executes console.log("isEligibleForDiscount");.
4. Output: "isEligibleForDiscount"
Second code
1. isMember is set to true, and age is 50.
2. The condition isMember == false || age >= 65 evaluates to false because:
isMember == false is false (since isMember is true).
age >= 65 is also false (since 50 is less than 65).
3. Since both conditions are false, the else block is executed.
4. Output: "isNotEligibleForDiscount"

4.

```
### Question 4: Scholarship Eligibility
**Scenario:** Determine if a student is eligible for a scholarship.

**Inputs:**
- `gpa`
- `extracurriculars` (boolean)
- `recommendation` (boolean)

**Outputs:**
- `isEligibleForScholarship` (boolean)

**Algorithm:**
1. Check if the GPA of the student is 3.5 or higher.
2. Check if the student participates in extracurricular activities.
3. Check if the student has a recommendation letter.
4. If the GPA is 3.5 or higher AND either participation in extracurricular activities or a
recommendation letter is true, print `isEligibleForScholarship`.
5. Otherwise, set `isNotEligibleForScholarship`.


**Example:**
- Input: `gpa = 3.6`, `extracurriculars = true`, `recommendation = false`
- Output: `isEligibleForScholarship`
```

Codes:

```javascript
var GPA=7.6;
var extracurriculars=true;
var recommendation=false;
if(GPA>3.5 && (extracurriculars==true || recommendation==true)){
    console.log("isEligibleForScholarship")
}
else{
    console.log("isNotEligibleForScholarship")
}
```

```javascript
var GPA=7.6;
var extracurriculars=false;
var recommendation=false;
if(GPA>3.5 && (extracurriculars==true || recommendation==true)){
    console.log("isEligibleForScholarship")
}
else{
    console.log("isNotEligibleForScholarship")
}
```

Outputs:

```
PS D:\23r\js> node Day9.js
isEligibleForScholarship
```

```
PS D:\23r\js> node Day9.js
isNotEligibleForScholarship
```

Explanation:

First code

1. GPA is 7.6, extracurriculars is true, and recommendation is false.

2. The condition GPA > 3.5 && (extracurriculars == true || recommendation == true) evaluates to true because:

GPA > 3.5 is true (since 7.6 is greater than 3.5).

(extracurriculars == true || recommendation == true) is also true because extracurriculars == true.

3. Since both parts of the condition are true, the program executes console.log("isEligibleForScholarship");.

4. Output: "isEligibleForScholarship"

Second code

1. GPA is 7.6, extracurriculars is false, and recommendation is false.

2. The condition GPA > 3.5 && (extracurriculars == true || recommendation == true) evaluates to false because:

GPA > 3.5 is true.

(extracurriculars == true || recommendation == true) is false because both extracurriculars and recommendation are false.

3. Since the second part of the condition is false, the else block is executed.

4. Output: "isNotEligibleForScholarship"