regular expressions

1. **Email Validation**:
   - **Regex**: ^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$
   - **Explanation**: Matches email addresses with typical characters before and after the @ symbol and ensures a valid domain.
2. **Phone Number Extraction**:
   - **Regex**: (?:\(\d{3}\)\s?|\d{3}[-.\s])\d{3}[-.\s]\d{4}
   - **Explanation**: Matches phone numbers in formats like (123) 456-7890, 123-456-7890, 123.456.7890, or 123 456 7890.
3. **URL Matching**:
   - **Regex**: \b(?:https?:\/\/)?(?:www\.)?[a-zA-Z0-9.-]+\.(?:com|org|net)\b
   - **Explanation**: Matches URLs with optional http, https, or www, and ending with .com, .org, or .net.
4. **Date Extraction**:
   - **Regex**: \b(?:\d{2}[-/]\d{2}[-/]\d{4}|\d{4}[-/]\d{2}[-/]\d{2})\b
   - **Explanation**: Matches dates in formats like DD-MM-YYYY, MM/DD/YYYY, or YYYY-MM-DD.
5. **Password Validation**:
   - **Regex**: ^(?=.*[a-z])(?=.*[A-Z])(?=.*\d)(?=.*[@$!%*?&])[A-Za-z\d@$!%*?&]{8,}$
   - **Explanation**: Ensures passwords have at least one lowercase letter, one uppercase letter, one digit, one special character, and are at least 8 characters long.
6. **Extracting Hashtags**:
   - **Regex**: #\w+
   - **Explanation**: Matches hashtags in the format #Hashtag.
7. **IP Address Matching**:
   - **Regex**: \b(?:25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)\.(?:25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)\.(?:25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)\.(?:25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)\b
   - **Explanation**: Matches IPv4 addresses where each octet is between 0 and 255.
8. **HTML Tag Removal**:
   - **Regex**: <[^>]+>
   - **Explanation**: Matches HTML tags and can be used to remove them from a string.
9. **Finding Repeated Words**:
   - **Regex**: \b(\w+)\b\s+\b\1\b
   - **Explanation**: Finds repeated words where \1 refers to the first captured word.
10. **Extracting Table Data**:
    - **Regex**: <tr>\s*<td>(.*?)<\/td>\s*<td>(.*?)<\/td>\s*<\/tr>
    - **Explanation**: Extracts data from a simple HTML table with two <td> elements in each <tr>. Adjust as needed for different table structures.