

Trabajo Práctico N°6

Giovanni Azurduy , Lautaro Larosa

Actividad 1:

Configuración del entorno

Sistema operativo del servidor: Linux (Kali/Fedora)

Servidor HTTP utilizado: Uvicorn (corriendo FastAPI)

Lenguajes utilizados:

Frontend: HTML, CSS, JavaScript

Backend: Python (FastAPI)

Carpeta de trabajo: Directorio del proyecto local (~/.proyectos/web_fastapi/)

Comando de inicio del servidor:

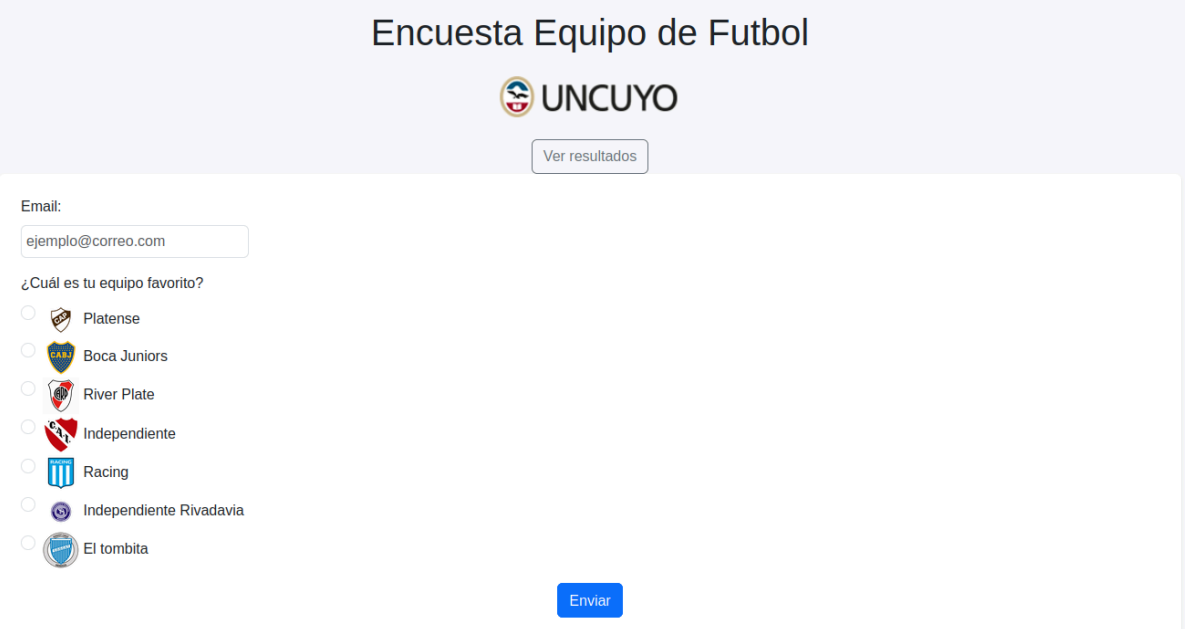
```
uvicorn main:app --host <IP_del_servidor> --port 8000
```

Prueba de funcionamiento:

Acceso desde otra computadora o celular mediante navegador web
ingresando la dirección:

`http://<IP_del_servidor>:8000`

Screenshots de la página web :



Encuesta Equipo de Futbol

UNCUIYO

Ver resultados

Email:

ejemplo@correo.com

¿Cuál es tu equipo favorito?

☐ Platense

☐ Boca Juniors

☐ River Plate

☐ Independiente

☐ Racing

☐ Independiente Rivadavia

☐ El tombita

Enviar

Screenshot una vez enviado el voto :

Resultados de la encuesta

Independiente	1 votos
Platense	6 votos
Racing	1 votos
Independiente Rivadavia	1 votos
River Plate	1 votos
Godoy Cruz	1 votos

Volver a votar

Actividad 2:

Se utilizó Wireshark desde otro dispositivo conectado a la misma red para capturar los paquetes.

petición Get para ver los resultados:

No.	Time	Source	Destination	Protocol	Length	Info
8004	141.041088147	10.65.4.120	10.65.3.126	HTTP	451	GET / HTTP/1.1
8013	141.135547404	10.65.4.120	10.65.3.126	HTTP	425	GET /static/estilo.css HTTP/1.1
8474	154.321850446	10.65.4.120	10.65.3.126	HTTP	451	GET / HTTP/1.1
17793	244.561337242	10.65.4.120	10.65.3.126	HTTP	451	GET / HTTP/1.1
17713	244.626211313	10.65.4.120	10.65.3.126	HTTP	510	GET /static/script.js HTTP/1.1
19276	306.015510483	10.65.4.120	10.65.3.126	HTTP	451	GET / HTTP/1.1
21274	384.653851404	10.65.4.120	10.65.3.126	HTTP	500	GET /ver-resultados HTTP/1.1

Frame 21274: 500 bytes on wire (4000 bits), 500 bytes captured (4000 bits) on interface wlo1, id 0

Ethernet II, Src: Routerboard, c1:57:0f (74:dd:28:c1:57:0f), Dst: ce:78:66:9f:6d:2d (ce:78:66:9f:6d:2d)

Internet Protocol Version 4, Src: 10.65.4.120, Dst: 10.65.3.126

Transmission Control Protocol, Src Port: 44994, Dst Port: 8080, Seq: 1, Ack: 1, Len: 434

Hypertext Transfer Protocol

GET /ver-resultados HTTP/1.1

Host: 10.65.3.126:8080

User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:128.0) Gecko/20100101 Firefox/138.0

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

Accept-Language: es-ES,es;q=0.8,en-US;q=0.5,en;q=0.3

Accept-Encoding: gzip, deflate

DNT: 1

Sec-GPC: 1

Connection: keep-alive

Upgrade-Insecure-Requests: 1

Priority: u=0

Full request URI: http://10.65.3.126:8080/ver-resultados

0060 10 6f 73 74 8a 20 31 30 20 30 35 2e 23 20 61 02 Host: 10.65.3.126

0070 36 3a 38 30 30 30 8d 0a 55 73 65 72 2d 41 67 65 0:8080 User-Agent

0080 6e 74 3a 20 4d 6f 7a 69 6c 6c 61 2f 35 2e 30 20 nt: Mozilla/5.0

0090 28 50 31 31 30 20 55 62 75 6e 74 75 30 20 4c 69 (X11; Ubuntu; Li

00a0 6e 75 78 20 78 38 36 5f 36 3a 30 20 72 76 3a 31 nux x86_64; rv:1

00b0 33 38 2e 30 29 20 47 65 63 68 6f 2f 32 30 31 30 38.0) Gecko/2010

00c0 30 31 30 31 20 46 69 72 65 68 6f 78 2f 31 33 38 0101 Firefox/138

00d0 2a 30 0d 0a 41 63 63 65 70 74 3a 20 74 65 78 74 .0 Accept: text

00e0 2f 68 74 6d 6c 2c 61 70 70 6c 69 63 61 74 69 6f /html,application

00f0 6e 2f 78 68 74 6d 6c 2b 70 6d 6c 2c 61 70 79 6c n/xhtml+xml,appl

0100 69 63 61 74 69 6f 6e 2f 70 6d 6c 3b 71 3d 30 2e ication/; q=0.

0110 39 2c 2a 2f 2a 3b 71 3d 30 2e 38 0d 0a 41 63 63 9,*/*; q=0.8 Acc

0120 65 70 74 2d 4c 61 6e 67 75 61 67 65 3a 20 65 73 ept-Language: es

0130 2d 45 53 2c 65 73 30 71 3d 30 2e 38 2c 65 6e 2d -ES,es;q=0.8,en

0140 55 53 3b 71 3d 30 2e 35 2c 65 6e 3b 71 3d 30 2e US;q=0.5,en;q=0.

0150 33 0d 0a 41 63 63 65 70 74 2d 45 6e 63 6f 64 69 3-Accept-Encodi

0160 6e 67 3a 20 67 7a 69 70 2c 20 64 65 6e 6c 61 74 ng: gzip, deflat

0170 65 0d 0a 44 4e 54 3a 20 31 0d 0a 53 65 63 2d 47 e-DNT: 1, Sec-G

0180 50 43 3a 20 31 0d 0a 43 6f 6e 6e 65 63 74 69 6f PC: 1-Connectio

0190 6e 3a 20 65 65 70 2d 61 6c 69 70 65 0d 0a 52 n:keep-alive R

01a0 65 68 65 72 65 72 3a 20 68 74 74 70 3a 2f 2f 31 eferer: http://1

01b0 30 2e 36 35 2e 33 2e 31 32 36 3a 38 30 30 30 2f 0.65.3.1 26:8080/

01c0 0d 0a 55 79 67 72 61 64 65 2d 49 6e 73 65 63 75 -Upgrade-Insecu

01d0 72 65 2d 52 65 71 75 65 79 74 73 3a 20 31 0d 0a re-Request: 1

01e0 50 72 69 6f 72 69 74 79 3a 20 75 3d 30 2c 20 69 Priority: u=0, i

01f0 0d 0a 0d 0a

Response

No.	Time	Source	Destination	Protocol	Length	Info
33.5	322625875	10.65.3.126	10.65.4.120	TCP	74	8080 → 44994 [SYN, ACK] Seq=0 Ack=1 Win=65160 Len=0 MSS=1460 SACK_PERM TSval=1603239592 TSecr=1470836393 WS=128
36.5	326611319	10.65.3.126	10.65.4.120	TCP	66	8080 → 44994 [ACK] Seq=1 Ack=435 Win=64768 Len=0 TSval=1603239590 TSecr=1470836488
37.5	351923308	10.65.3.126	10.65.4.120	TCP	1514	8080 → 44994 [ACK] Seq=1 Ack=435 Win=64768 Len=1448 TSval=1603239597 TSecr=1470836488 [TCP segment of a reassembled PDU]
39.5	360891704	10.65.3.126	10.65.4.120	HTTP	424	HTTP/1.1 200 OK (text/html)
41.5	374082520	10.65.3.126	10.65.4.120	TCP	424	(TCP Spurious Retransmission) 8080 → 44994 [PSH, ACK] Seq=1449 Ack=435 Win=64768 Len=358 TSval=1603239608 TSecr=1470836488
73.10	331553245	10.65.3.126	10.65.4.120	TCP	66	8080 → 44994 [FIN, ACK] Seq=1007 Ack=435 Win=64768 Len=0 TSval=1603244597 TSecr=1470836535
75.10	333525441	10.65.3.126	10.65.4.120	TCP	66	8080 → 44994 [ACK] Seq=1008 Ack=436 Win=64768 Len=0 TSval=1603244604 TSecr=1470841459

```

* Frame 39: 424 bytes on wire (3392 bits), 424 bytes captured (3392 bits) on interface ens160, id 0
* Ethernet II, Src: Routerboardc1:57:70 (74:4d:28:c1:57:70), Dst: VMware_00:04:14 (00:50:56:00:04:14)
* Internet Protocol Version 4, Src: 10.65.3.126, Dst: 10.65.4.120
  0100 .... = Version: 4
  .... 0101 = Header Length: 20 bytes (5)
  * Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
    Total Length: 419
    Identification: 0x5966 (22886)
  * 010 .... = Flags: 0x2, Don't fragment
    ... 0 0000 0000 0000 = Fragment Offset: 0
    Time to Live: 63
    Protocol: TCP (6)
    Header Checksum: 0xc480 [validation disabled]
    [Header checksum status: Unverified]
    Source Address: 10.65.3.126
    Destination Address: 10.65.4.120
* Transmission Control Protocol, Src Port: 8080, Dst Port: 44894, Seq: 1449, Ack: 435, Len: 358
  Source Port: 8080
  Destination Port: 44894
  [Stream index: 0]
  * [Conversation completeness: Complete, WITH_DATA (31)]
  [TCP Segment Len: 358]
  Sequence Number: 1449 (relative sequence number)
  Sequence Number (raw): 2167863362
  [Next Sequence Number: 1807 (relative sequence number)]
  Acknowledgment Number: 435 (relative ack number)
  Acknowledgment number (raw): 1676483226
  1800 .... = Header Length: 32 bytes (8)
  * Flags: 0x018 (PSH, ACK)
  Window: 506
  [Calculated window size: 64768]
  [Window size scaling factor: 128]
  Checksum: 0xad61 [unverified]
  [Checksum Status: Unverified]
  Urgent Pointer: 0
  * Options: (12 bytes), No-Operation (NOP), No-Operation (NOP), Timestamps
  * [Timestamps]
  * [SEQ/ACK analysis]
  TCP payload (358 bytes)
  TCP segment data (358 bytes)
* [3 Reassembled TCP Segments (1806 bytes): #37(1448), #39(358), #41(358)]
* Hypertext Transfer Protocol
* Line-based text data: text/html (52 lines)

```

0000	00 50 56 00 04 14 74 d	28 c1 57 70 08 00 45 00	.PV...tM (.Wp..E.
0010	01 9a 59 66 40 00 3f 06	c4 80 0a 41 03 7e 0a 41	..Yf@.?..A.~.A
0020	04 78 1f 40 ac 3e 81 36	f8 42 63 ed 1a 9a 80 18	.x.@.>.6 .Bc.....
0030	01 fa ad 61 00 00 01 01	08 0a 5f 8f 7e ad 57 ab	...a....._~.W.
0040	2f 08 20 20 3c 2f 6c 69	3e 0a 20 20 20 20 20 20	/. .
0050	0a 20 20 20 20 20 20 20	20 3c 6c 69 20 63 6c 61	. <li cla
0060	73 73 3d 22 6c 69 73 74	2d 67 72 6f 75 70 2d 69	ss="list -group-i
0070	74 65 6d 20 64 2d 66 6c	65 78 20 6a 75 73 74 69	tem d-fl ex justi
0080	66 79 2d 63 6f 6e 74 65	6e 74 2d 62 65 74 77 65	fy-conte nt-betwe
0090	65 6e 20 61 6c 69 67 6e	2d 69 74 65 6d 73 2d 63	en align -items-c
00a0	65 6e 74 65 72 3e 0a	20 20 20 20 20 20 20 20	enter">.
00b0	20 20 47 6f 64 6f 79 20	43 72 75 7a 0a 20 20 20	Godoy Cruz.
00c0	20 20 20 20 20 20 20 3c	73 70 61 6e 20 63 6c 61	< span cla
00d0	73 73 3d 22 62 61 64 67	65 20 62 67 2d 70 72 69	ss="badg e bg-pri
00e0	6d 61 72 79 20 72 6f 75	6e 64 65 64 2d 70 69 6c	mary rou nded-pil
00f0	6c 22 3e 31 20 76 6f 74	6f 73 3c 2f 73 70 61 6e	l">1 vot os. .
0110	20 20 20 20 20 20 0a 20	20 20 20 3c 2f 75 6c 3e	.
0120	0a 0a 20 20 20 20 3c 64	69 76 20 63 6c 61 73 73	.. <div class
0130	3d 22 74 65 78 74 2d 63	65 6e 74 65 72 20 6d 74	="text-c enter mt
0140	2d 34 22 3e 0a 20 20 20	20 20 20 3c 61 20 68 72	-4">. <a hr
0150	65 66 3d 22 2f 22 20 63	6c 61 73 73 3d 22 62 74	ef="/" c lass="bt
0160	6e 20 62 74 6e 2d 73 65	63 6f 6e 64 61 72 79 22	n btn-se condary"
0170	3e 56 6f 6c 76 65 72 20	61 20 76 6f 74 61 72 3c	>Volver a votar<
0180	2f 61 3e 0a 20 20 20 20	3c 2f 64 69 76 3e 0a 20	/a>. </div>.
0190	20 3c 2f 64 69 76 3e 0a	0a 3c 2f 62 6f 64 79 3e	</div>. </body>
01a0	0a 3c 2f 68 74 6d 6c 3e		.</html>

Post

28234	808.237693773	10.65.4.120	10.65.3.126	HTTP	500 GET / HTTP/1.1
28242	808.547899131	10.65.4.120	10.65.3.126	HTTP	425 GET /static/estilo.css HTTP/1.1
28248	808.679119399	10.65.4.120	10.65.3.126	HTTP	510 GET /static/script.js HTTP/1.1
28253	808.980493363	10.65.4.120	10.65.3.126	HTTP	470 GET /favicon.ico HTTP/1.1
28315	824.071696064	10.65.4.120	10.65.3.126	HTTP	639 POST /procesar HTTP/1.1 (application/x-www-form-urlencoded)

```

00000000 38 5f 36 38 28 72 70 3a 31 33 38 38 86:4f v:138(0)
00000004 38 5f 36 38 28 72 70 3a 31 33 38 86:4f v:138(0)
00000008 46 6e 75 65 66 67 77 72 33 33 28 90:db1a
0000000c 63 63 65 70 74 3a 28 72 70 3a 31 33 86:4f v:138(0)
00000010 63 63 65 70 74 3a 28 72 70 3a 31 33 86:4f v:138(0)
00000014 66 6e 75 65 66 67 77 72 33 33 28 90:db1a
00000018 66 6e 75 65 66 67 77 72 33 33 28 90:db1a
0000001c 66 6e 75 65 66 67 77 72 33 33 28 90:db1a
00000020 66 6e 75 65 66 67 77 72 33 33 28 90:db1a
00000024 66 6e 75 65 66 67 77 72 33 33 28 90:db1a
00000028 38 71 3a 30 28 70 3a 43 63 63 65 70 74:2d4c
0000002c 66 6e 75 65 66 67 77 72 33 33 28 90:db1a
00000030 66 6e 75 65 66 67 77 72 33 33 28 90:db1a
00000034 38 71 3a 30 28 70 3a 43 63 63 65 70 74:2d4c
00000038 38 71 3a 30 28 70 3a 43 63 63 65 70 74:2d4c
0000003c 38 71 3a 30 28 70 3a 43 63 63 65 70 74:2d4c
00000040 38 71 3a 30 28 70 3a 43 63 63 65 70 74:2d4c
00000044 38 71 3a 30 28 70 3a 43 63 63 65 70 74:2d4c
00000048 74 69 70 28 20 6a 65 66 67 77 72 33 33:2890db1a
0000004c 74 69 70 28 20 6a 65 66 67 77 72 33 33:2890db1a
00000050 74 69 70 28 20 6a 65 66 67 77 72 33 33:2890db1a
00000054 74 69 70 28 20 6a 65 66 67 77 72 33 33:2890db1a
00000058 63 63 65 70 74 3a 28 72 70 3a 31 33 38 86:4f v:138(0)
0000005c 72 6a 2d 72 65 66 67 77 72 33 33 28 90:db1a
00000060 72 6a 2d 72 65 66 67 77 72 33 33 28 90:db1a
00000064 32 6d 94 44 72 67 69 69 6a 30 68 74 74 70:3a
00000068 32 6d 94 44 72 67 69 69 6a 30 68 74 74 70:3a
0000006c 30 6d 44 44 54 54 54 54 30 31 6d 44 74:703a
00000070 47 50 43 3a 65 66 67 77 72 33 33 28 90:db1a
00000074 55 65 66 72 65 73 3a 28 68 74 74 3a 2f:2d
00000078 55 65 66 72 65 73 3a 28 68 74 74 3a 2f:2d
0000007c 55 65 66 72 65 73 3a 28 68 74 74 3a 2f:2d
00000080 40 6d 55 70 67 77 72 61 64 65 20 40 6d 55:706777261
00000084 72 75 62 05 62 67 77 72 61 74 73 3a 20:316d
00000088 72 75 62 05 62 67 77 72 61 74 73 3a 20:316d
0000008c 72 75 62 05 62 67 77 72 61 74 73 3a 20:316d
00000090 72 75 62 05 62 67 77 72 61 74 73 3a 20:316d
00000094 67 6d 63 6a 65 6d 61 69 6c 3d 63 6d 63:6a656d61696c3d636d63
00000098 67 6d 63 6a 65 6d 61 69 6c 3d 63 6d 63:6a656d61696c3d636d63
0000009c 67 6d 63 6a 65 6d 61 69 6c 3d 63 6d 63:6a656d61696c3d636d63
000000a0 67 6d 63 6a 65 6d 61 69 6c 3d 63 6d 63:6a656d61696c3d636d63

```

```

Frame 113: 424 bytes on wire (3392 bits), 424 bytes captured (3392 bits) on interface ens160, 10 s
  Ethernet II, Src: Routerboard:c1:57:75, Dst: VMware:08:00:14:00:00:00 (00:50:56:08:00:14)
  Internet Protocol Version 4, Src: 10.65.3.126, Dst: 10.65.4.120
    0100 .... = Version: 4
    .... 0101 = Header Length: 20 bytes (5)
    Differentiated Services Field: 0x000 (DSCP: CS0, ECN: Not-ECT)
      Total Length: 410
      Identification: 0xa06d (42637)
      010 .... = Flags: 0x2, Don't fragment
      ... 8 0000 0000 0000 = Fragment Offset: 0
      Time to Live: 63
      Protocol: TCP (6)
      Header Checksum: 0x7759 [validation disabled]
        (Header checksum status: Unverified)
      Source Address: 10.65.3.126
      Destination Address: 10.65.4.120
  Transmission Control Protocol, Src Port: 8080, Dst Port: 53442, Seq: 1449, Ack: 569, Len: 358
    Stream index: 51
    Conversation completeness: Complete, WITH_DATA (31)
    [TCP Segment Len: 358]
    Sequence Number: 1449 (relative sequence number)
    Sequence Number [raw]: 2555597901
    Next Sequence Number: 1897 (relative sequence number)
    Acknowledgment Number: 569 (relative ack number)
    Acknowledgment number [raw]: 697513545
    3000 .... = Header Length: 32 bytes (8)
    Flags: 0x018 (PSH, ACK)
    Window: 505
    [Calculated window size: 64648]
    [Window size scaling factor: 128]
    Checksum: 0xc0f4 [unverified]
    [Checksum Status: Unverified]
    Urgent Pointer: 0
    Options: (12 bytes), No-Operation (NOP), No-Operation (NOP), Timestamps
      TCP Option - No-Operation (NOP)
      TCP Option - No-Operation (NOP)
      TCP Option - Timestamps
      Kind: Time Stamp Option (8)
      Length: 10
      Timestamp value: 1603790951: Tseq 1603790951, Tsecr 1471387708
      Timestamp echo reply: 1471387708
    [Timestamps]
    [SEQ/ACK analysis]
      TCP payload (358 bytes)
      TCP segment data (358 bytes)
    [2 Reassembled TCP Segments (1806 bytes) = #111(1448), #113(358)]
    Hypertext Transfer Protocol
      Line-based text data: text/html (52 lines)

```

0000	00 50 56 00 04 14 74 4d 28 c1 57 70 08 00 45 00	·PV···tM (·Wp··E·
0010	01 9a a6 8d 40 00 3f 06 77 59 0a 41 03 7e 0a 41	····@·?· wY·A·~·A
0020	04 78 1f 40 d0 c2 98 51 f4 bd 29 93 36 49 80 18	·x·@···Q ··)·6I··
0030	01 f9 c0 f4 00 00 01 01 08 0a 5f 97 e8 67 57 b3	········· ··_··gw·
0040	98 3c 20 20 3c 2f 6c 69 3e 0a 20 20 20 20 20 20	·< ·
0050	0a 20 20 20 20 20 20 20 20 3c 6c 69 20 63 6c 61	· <li cla
0060	73 73 3d 22 6c 69 73 74 2d 67 72 6f 75 70 2d 69	ss="list -group-i
0070	74 65 6d 20 64 2d 66 6c 65 78 20 6a 75 73 74 69	tem d-fl ex justi
0080	66 79 2d 63 6f 6e 74 65 6e 74 2d 62 65 74 77 65	fy-conte nt-betwe
0090	65 6e 20 61 6c 69 67 6e 2d 69 74 65 6d 73 2d 63	en align -items-c
00a0	65 6e 74 65 72 22 3e 0a 20 20 20 20 20 20 20 20	enter">·
00b0	20 20 47 6f 64 6f 79 20 43 72 75 7a 0a 20 20 20	Godoy Cruz·
00c0	20 20 20 20 20 20 20 20 20 3c 73 70 61 6e 20 63 6c 61	< span cla
00d0	73 73 3d 22 62 61 64 67 65 20 62 67 2d 70 72 69	ss="badg e bg-pri
00e0	6d 61 72 79 20 72 6f 75 6e 64 65 64 2d 70 69 6c	mary rou nded-pil
00f0	6c 22 3e 31 20 76 6f 74 6f 73 3c 2f 73 70 61 6e	l">1 vot os· ·
0110	20 20 20 20 20 20 20 0a 20 20 20 20 3c 2f 75 6c 3e	·
0120	0a 0a 20 20 20 20 20 3c 64 69 76 20 63 6c 61 73 73	·· <d iv class
0130	3d 22 74 65 78 74 2d 63 65 6e 74 65 72 20 6d 74	= "text-c enter mt
0140	2d 34 22 3e 0a 20 20 20 20 20 20 3c 61 20 68 72	-4">· <a hr
0150	65 66 3d 22 2f 22 20 63 6c 61 73 73 3d 22 62 74	ef="/" c lass="bt
0160	6e 20 62 74 6e 2d 73 65 63 6f 6e 64 61 72 79 22	n btn-se condary"
0170	3e 56 6f 6c 76 65 72 20 61 20 76 6f 74 61 72 3c	>Volver a votar<
0180	2f 61 3e 0a 20 20 20 20 3c 2f 64 69 76 3e 0a 20	/a>· </div>·
0190	20 3c 2f 64 69 76 3e 0a 0a 3c 2f 62 6f 64 79 3e	</div>· </body>
01a0	0a 3c 2f 68 74 6d 6c 3e	·</html>

Conclusión:

Durante el análisis de los paquetes HTTP con Wireshark, se puede ver que la comunicación entre el cliente y el servidor **no está cifrada**, ya que se utiliza el protocolo HTTP en lugar de HTTPS.

Esto significa que **los datos transmitidos, incluyendo el contenido del formulario como el email ingresado, pueden ser visualizados en texto plano** desde cualquier analizador de red que esté escuchando en la red local. Esta situación representa un riesgo de seguridad, especialmente cuando se manejan datos sensibles o identificatorios.

Por ejemplo, en la captura del paquete HTTP correspondiente a la petición POST, se puede observar claramente el valor del campo "email", lo que evidencia que el protocolo no protege la confidencialidad de la información transmitida.