SPENT BULLETS 子彈是餘生

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When the brightest star within a cohort of elite engineering students leaps from the twenty-third floor of a Las Vegas hotel, his peers are left in confusion and doubt. These nine stories reveal the dark struggles and twisted motives behind the façade of competence projected by these gifted students.

The standout within an elite cohort of engineering students, Chieh-Heng is both admired and hated by his peers, who inevitably find themselves struggling to keep pace with his genius. At his best, Chieh-Heng is the bright star that lights the way ahead. At his worst, he is the darkness that swallows up the light of those around him.

When Chieh-Heng jumps from the twenty-third floor of a Las Vegas hotel, his peers are left to wrestle with their grief, envy, resentment, ambivalence, shame, and powerlessness. Why would a genius who could achieve whatever he wanted – without ever breaking a sweat – end his life? When the model of success you've exhausted yourself trying to emulate suddenly exits the stage, what is there left to strive for?

With these nine stories, Terao Tetsuya lays bare the dilemma of success faced by students at the top of the academic pyramid. From their teen years to early adulthood, from the top universities of Taiwan to the information technology giants of Silicon Valley, unrelenting pressure and intense competition are the name of the game, even at the risk of pushing oneself to the edge of sanity and the brink of despair.

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SPENT BULLETS

By Terao Tetsuya Translated by Kevin Wang

Chapter 3: Healthy Disorder

When my punches landed on his forehead, Chieh-Heng didn't even flinch. He seemed detached, as though the split skin and bruises on his brow had nothing to do with him. Flakes of his skin stuck to my knuckles. I thought I'd drawn blood, but it was only the slick of sweat.

"You should stop letting Hsiao-Hua take that drug," he said.

He squatted on the floor in front of me, facing my crotch. When I hit him, he would sometimes lose balance and topple back, then quickly return to his squat like a wobble doll.

"Stop letting her take drugs," he said even more softly. I knew he was just provoking me. After all, it had been Hsiao-Hua's own decision to start using Ritalin.

"I have no other choice," she'd said. It started during the ACM ICPC Asian Regional Contest. At night on campus, the entire Computer Center was lit up, and a national flag the length of three people hung over the entrance. Balloons for the contest were arranged in a square in a corner of the computer lab. That was when she first took Ritalin.

"You of all people have the least right to say that," I said, searching Chieh-Heng's indifferent face. I could not tell how he had so much trust in my aim. Just a few centimeters lower, and I could have broken his nose. A few centimeters to the side, and I'd have beaten him blind.

"Lie down," I commanded.

I pinned him onto the ground with an elbow locked around his neck, fixing his head in place. His nose bumped against my cheek as I pressed my mouth to his, our lips locking at a ninety-degree angle like goldfish attempting resuscitation.

His breaths came excited and desperate in quick, drowning gasps. The smell of his body and the damp rush of his exhalations enveloped my face. I spat hard at his open mouth, forcing every bit of spit and air I had into him. At the same time, I felt his erection quietly pushing through layers of fabric against my thigh.

"You like that, don't you." I unzipped my trousers and was in his mouth again.

A tangle of water pipes and their criss-crossed shadows ran across the floor. His back banged against the pipes in a succession of hollow thuds. It had been dark for a while. The balcony on the fourth floor of the Computer Center was secluded, with the wall of the Fisheries Institute just a few meters away to block out most sources of light. Only a small triangle of street light landed on Chieh-Heng's nose. Even at a moment like this, his expression was blank. I hated that blank expression.



Problem C: The inevitable mediocrity of the connected.

The score of a sequence of integers is defined as the bitwise OR value of all numbers in the sequence.

Now you are given a sequence of integers a_0 , a_1 , ... a_{N-1} , and you must cut the sequence into K consecutive segments. Find the maximum possible value of the sum of scores of all K segments.

Input: The first line contains two positive integers *N* and *K* ($K \le N \le 2 \times 10^5$) – the length of the sequence and the number of segments.

The second line contains N non-negative integers a_0 , a_1 , ... a_{N-1} ($a_i < 2^{32}$).

Output: Output the maximum possible value of the sum of scores of all K segments.

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This was one of the problem sets that Hsiao-Hua bequeathed to us, and also her birthday gift to Chieh-Heng.

In high school, Hsiao-Hua had been recommended to NTU's Department of Computer Science and Information Engineering based on her exceptional performance at Selection Camp. Yet, once she got to NTU, she didn't interact with anyone in the competitive circle, nor did she hang out with people in our lab. When it came time to form teams for ACM ICPC, she came to me, someone with no competitive background.

"I developed an eating disorder at Selection Camp," she said. "Everyone there thought I was really scary."

I didn't ask, but she began to describe her bulimia in painstaking detail. She didn't gain weight because she'd vomit right after eating. As the only girl at the camp, she had the whole bathroom to herself and would feel a sense of peace whenever she lowered herself behind a stall to face the toilet. She was addicted to the way it sharpened her senses: the acidic heat of half-digested food sliding out from her throat, the strands of hair sticking to the cold sweat on her forehead, the dizziness of dehydration. She spoke faster and faster, letting a stifled pride seep from her words like that of a retired soldier telling war stories while fondly stroking their scars.

This aspect of Hsiao-Hua didn't actually bother me. At least she was willing to admit that she pushed herself to the breaking point.

"Most people at this school are garbage," she said. "Garbage with no aptitude, strutting around as though they were geniuses. They boast about giving it their all, but they have no idea



what it means to really push themselves to the limit. Basically, aside from Chieh-Heng, everyone else is worthless, including you and me. I wish with my whole heart that people would understand this."

There was a twinkle in her eyes when she mentioned Chieh-Heng. I saw people like her all the time. The more they considered themselves gifted, cupped preciously in the palms of peers and teachers from youth, the more they spiraled into a hopeless fascination with Chieh-Heng once they recognized the vast gulf between them.

I knew then that Hsiao-Hua was bound to turn to drugs.

"We have no other choice," I began telling her.

After the national programming contest, Yang Chia-Hung had wept so violently in the bathroom stall that it triggered his asthma. The professor brought a crowd of people to knock down the door. When Chieh-Heng carried him out, he struggled to walk on his own. "Not you— anyone but you—," he shouted in Chieh-Heng's arms, his red face streaked with snot and spittle, helpless as a newborn baby.

"We have no other choice," I repeated. She was finally convinced.

At first, she took 10mg. After feeling the effects, she strengthened the dose until she reached the 30mg adult daily limit stated on Wikipedia. The drug gave her a dizzying thrill. It was like leaving the ground, she said. Her mind, both tense and clear, somersaulted through the air at every second.

When rashes appeared on her skin, I said, "It should be okay."

I thought she was joking when she started to convulse. But quickly, the strange twitch in her facial muscles and her chattering teeth escalated to an uncontrollable level.

I helped her out of the Computer Center before anyone noticed. Fog hung thick on Royal Palm Boulevard. The lamplights glowed hazily like spectral flames. Inside the health center, there was only one person on duty. All she did was get Hsiao-Hua to lie down before returning to her booth. I hadn't been back to the health center since a mandatory health exam on matriculation day, and I didn't know it would be so eerie. Only one lamp was on, hanging over the adjacent bed. The partition curtains were all left open, and I could see all the way to the far end of the narrow ward.

Hsiao-Hua's convulsions gradually eased. Her muscles relaxed, and her teeth stopped chattering. Her breaths were raspy, but as long as she could make that sound, it meant that she was still here.

"Don't let Chieh-Heng know," she said, looking defeated.

I was quiet, observing the consequences of what I had incited. Seeing her on the bed, eyes wide and breaths heavy, muttering words meant for no one in particular, gave me an inexplicable sense of consolation. It must have been the most peaceful I'd felt since coming to NTU. Upon realizing that I was no more virtuous than Hsiao-Hua's Selection Camp classmates and no more twisted, I was relieved beyond measure.



There was a shooting at Virginia Tech University. The shooter began by killing two students at a residence hall. Then, he proceeded to the building that housed the engineering department, where he launched indiscriminate attacks that resulted in thirty-two deaths and twenty-three injuries. He killed himself in the same building. In the time between the two attacks, he'd sent a package to NBC News with a manifesto: "You had a hundred billion chances and ways to have avoided today, but you decided to spill my blood. You forced me into a corner and gave me only one option."

I told Ming-Heng about today's headline.

"Mm," Ming-Heng said. "Very therapeutic."

On NTU CSIE night, the first-year women's dance team was scheduled to give a big performance before intermission. Ming-Heng and I watched from backstage, where we managed the lights. During a break in the song, the dancers tore off their hoodies, leaving only their cut-up department t-shirts that exposed all the skin on their torsos save for their breasts. Hsiao-Hua, who stood in the least noticeable position at the rear, snatched off her hoodie just barely in time with the beat.

She was trying too hard. Her movements were so high-strung that it made those who watched her fear an impending disaster.

"When do you think Hsiao-Hua will shoot us all?" I asked.

The audience was in shadow, though their glow sticks emitted dots of light that swung back and forth like bioluminescent creatures in the deep sea.

"That wouldn't happen," he said. "She's not that kind of person."

The music went on, each blast of bass an unnerving squeeze on the chest. Flurries of noise rose from the audience: whoops, shouts, confessions of love. At the front of the stage, columns of fire erupted from the flame machines, instantly lighting up everyone's faces. The dancers took a knee. Someone rushed on stage with a bouquet, tripped on a wire, and landed with a thud.

"What a shame."

"What's a shame?"

The flames had briefly illuminated Ming-Heng's sweat-soaked side profile. I regretted my question. After all, nothing there was worth lamenting.

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The trick is to say "we" instead of "you". Always tie yourself to the other person to maintain a mental image of shared fates: we have no other choice; we must give it our all; we never give up. These phrases should be taboo, because research has shown motivational phrases can strengthen suicidal tendencies. As for what to say when you want to convince someone not to die – well, I'm not sure about that.

"I've actually known for a while," Hsiao-Hua said.

"Known what?" I asked.



The wind was especially strong on the rooftop of the department building at night. There was almost ten meters of space between me and her. I was at the door while she was on the other side of the railing by the edge of the roof. We were as still as two pillars of salt, waiting to be eroded. I had no idea what to do or say. When Hsiao-Hua wasn't miserable, I wanted her to suffer more. When she was really on the verge of disappearing from this world, I wanted her to stay.

"I know why you hate me so much," she said.

"Don't be ridiculous."

"It's because you see yourself in me," she said. "Funny, isn't it? Well, at least I think it's funny. Don't you get what I mean?"

She took a step back, one hand gripping the railing. "I wish I could see the look on Chieh-Heng's face when he finds out."

I took a deep breath. "Even if you were right, I know you're not as crazy as that Virginia guy on the news."

"Can you come here? I can't climb back over on my own," she said.

I closed our distance step by step. Her cheeks flickered as light ebbed across her face. The shadows from her bangs sprawled like branches over her forehead.

She said, "Oh, there's something I forgot to tell you. I know what you do with Chieh-Heng on the rooftop."

"And on the Computer Center balcony. I know about that, too."

When I was close enough to touch her, she began to laugh. It was a laugh of earnest satisfaction, as though she had accomplished something significant.

"You really did come over. Great job! Here's your reward," she said. Right in front of me, she leaned back and let go.

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Problem H: The singularity point.

Given a convex polygon P with N edges and an integer K, a Niezick-Linnai K-gon is defined as having K vertices that lie on the edges of P such that the perimeter of P is divided equally. A minimal Niezick-Linnai K-gon is the Niezick-Linnai K-gon with the smallest area.

Now, you want to apply this process repeatedly until the end of the world – given the initial polygon P and K, you want to find the minimal Niezick-Linnai K-gon, K_1 of P, then find the minimal Niezick-Linnai K-gon, K_2 of K_1 , and so on, until the shape converges to a point Q.

Input: The first line contains two integers, N and K ($3 \le N, K \le 1000$) – the number of vertices of the original and new convex polygon.



Each of the next N lines contains two integers x_i and y_i , $(-10^5 \le x_i, y_i \le 10^5)$, meaning the coordinates of the vertices of the initial polygon. The vertices are given in a counterclockwise order.

Output: output the coordinates of the converged point Q. The answer is considered correct if its relative or absolute error does not exceed 10⁻⁸. If it is not possible to converge to one point, output "impossible" (without quotes).

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This was the last problem set Hsiao-Hua gave to Chieh-Heng.

The department had arranged for a group visit to see Hsiao-Hua in the hospital. Her popularity took me by surprise. There were even some classmates who had folded a thousand origami cranes for her. The room brimmed with medical equipment, including an infrared eye tracker. The only movable part left in Hsiao-Hua's body was her left eye, and she relied on it to type. A speaker by her head read out her words in the odd, monotonous Chinese of an answering machine.

"Thank—you—every—one—for—coming—to—see—me."

Chieh-Heng was standing in the corner by the door, but she still spotted him.

"Maestro—I—am—j—j-j-j-j-j-j-j-j-"

Her eyes were filled with tears. It must have messed up the gaze tracker, leaving it stuck on the Zhuyin keyboard's ų key. I brushed aside the crowd of people, took a tissue from the bedside table, and gently wiped around her eye to absorb the tears. She ignored me and continued her apology, telling Chieh-Heng she was sorry that she caused the contest to be suspended. She hoped he would still visit her.

Chieh-Heng said, "Okay."

In fact, I was the one who visited her most.

Talking with Hsiao-Hua was an unusual experience. It took her a long time to type with one eye. Whether due to an issue with the machine or lack of practice, her speech had nothing of the composure and eloquence that Stephen Hawking had shown when we saw him on TV.

"*Do—you—not—think—I-am—very—stupid?*" It took her a full minute to compose this sentence.

"Not—a—bit—of—regret—I—have—not—a—bit—of—regret."

At one point, some acquaintances on the CSIE Student Council organized a coding contest in her hospital room. They called it the "Hsiao-Hua Cup." We borrowed another eye tracker and asked Chieh-Heng to cover his right eye so that they could have a friendly match. There was only one problem to solve. It was not difficult, just a calculation for the greatest common divisor. The contest was more about typing than programming. Some students couldn't help but break into tears since the atmosphere was a bit too much like a living funeral, or a final celebration in hospice care. Hsiao-Hua and Chieh-Heng, however, took the competition seriously. Sitting still amidst the



noises of the strange machines, they flicked their eyeballs around, typing out line after line of code. Hsiao-Hua even had the energy to console her crying classmates.

Ming-Heng and I visited her regularly. When she wasn't doing well, she passed the day in a speechless stupor. On those days, I simply changed the water for the flowers by her bed. The trip from Gongguan to NTU Hospital had become a weekly ritual, undertaken after completing our practice contests.

"No-regrets-I-have-no-regrets-"

Paralyzed, wrapped in adult diapers, unable to do anything on her own, Hsiao-Hua only said these words over and over.

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"Are we going to make a lot of money one day?"

After leaving the hospital, I walked south along Roosevelt Road with Ming-Heng. Headlights from the late-night traffic lit up our faces.

"I have to make a lot of money. Lots and lots."

The glow of the street lamps was diffused through the misty rain. Under the sheltered walkway, our footsteps echoed through the thick air, a regular rhythm that broke the silence as though we were striking at time itself, intent on cracking it and reducing it to dust. But really, our future, or fate, would not deviate by a grain of sand. On this promised trajectory, like rockets thrusting upward before achieving orbit, all we could do was sacrifice each other, and ourselves, striving to ascend faster and faster until we broke into the limitless cosmos where nothing would impede our progress, where we would be like Chieh-Heng.

"I don't know what I'd do with all the money," I said. "I just want revenge."

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My cock went soft in Chieh-Heng's mouth.

I stared at the floor and at the gaps around the water pipes where they entered the concrete wall. On the dim balcony, he helped me pull up my underwear and zipped me up, fastening the button in the waist of my jeans. He wiped my face with his shirt sleeve. The sleeve was as cold as the wind.

We walked out of the Computer Center, skipping the routine practice contest that was about to start, passed the bicycle parking shed between the Fisheries Institute and Shih-liang Hall and headed for Drunken Moon Lake. There weren't many people near the lake at this time, especially on the side by the Old Mathematics Building and Xinsheng Lecture Building. In the distance were the glaring ball court lights. The shouts of sports teams and the rumble of traffic on Xinsheng South Road all seemed to be coming from the ends of the universe. In a passing breeze, our trouser legs rubbed against each other, and the grasses rustled.



Drunken Moon Lake had become seriously eutrophied. Looking out from shore, the water was murky, and there was no telling how deep it went. There was a pavilion in the middle, with an inviting set of stairs that descended onto the lake, though swimming here was forbidden. A layer of light pollution stretched over the water. Our dark, blurry faces were overlaid on its surface.

This would be the last time.

We passed through Palm Avenue, taking the path from the 9th Women's Dorm to our department building. This unnamed path was lined with trees, the ground piled thick with a layer of fallen leaves. Along the path were the AC condensers at the rear ends of buildings, rumbling cooling towers, dumpsters, and recycling trucks. We took the elevator straight up to the sixth floor. The first and second floors were classrooms and computer labs. The basement had a reading room, Mahjong room, and comics room. From the third floor up were the spaces of the graduate schools. Normally, undergraduate students would not go up this far, let alone to the roof. I only knew this spot on the roof because of Chieh-Heng.

Upon opening the rusty and mottled iron door, a current of air rushed in. We walked to the side facing the open-air atrium. We'd chosen this place initially for the raised platform of the water towers and the concrete floors that dried quickly in the wind. Chieh-Heng had said that it was the only place on campus he could think of where it wouldn't matter if urine splattered all over the floor.

This was also where Hsiao-Hua leaned over and fell.

Chieh-Heng said, "This is the last time. Come on."

"Just like we used to," he said. "Come on."

The wind was so fierce it seemed to be trying to scrape off our faces. It sliced across the silver surface of the water tower, across his lean side profile. He was still looking at me with that guileless expression, just as he did in the beginning.

I stood on the platform while he was beneath me, the height difference putting his face level with my crotch. His expression held not a trace of hesitation, regret, upset, pain, or doubt, just like a cube of crystal-clear ice, unmelting and unmoved.

All of it seemed absurd to me, just like my soft cock.

The wind was indifferent as it cut between us, threatening to lift away our eyelids. In this place, at the spot where Hsiao-Hua jumped, I tried searching his face for even a hint of injury or regret, but it was in vain. It was always like this between us, just an enormous, meaningless struggle.

I pulled down my zipper.

"Drop dead," I said. "You're worthless."

